

REDACTED VERSION

**OPERATION AND MAINTENANCE REPORT
THIRD QUARTER 2015**

**DELATTE METALS SUPERFUND SITE
AGENCY INTEREST NO. 2328**

**DATE SUBMITTED:
NOVEMBER 16, 2015**

**OPERATION AND MAINTENANCE REPORT
THIRD QUARTER 2015
AGENCY INTEREST NO. 2328**

PREPARED FOR

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1.0 INTRODUCTION AND BACKGROUND

SEMS, Inc. (SEMS) was selected by the Louisiana Department of Environmental Quality (LDEQ) for the continued Operations and Maintenance (O&M) of the Delatte Metals Superfund Site in Tangipahoa Parish, Ponchatoula, Louisiana. The Delatte Metals Superfund Site is currently under periodic O&M, including groundwater and surface water sampling to determine if constituents of concern (COCs) remediated at the site are in a declining condition and to ensure that COCs are not migrating horizontally past the permeable reactive barrier (PRB) or vertically into lower water bearing zones. This report summarizes SEMS' performance of site activities associated with the onsite and offsite water supply wells during the current quarter. A map showing the locations of the onsite and offsite water supply wells is presented as **Figure 1**. A brief status and history of the site are provided below.

The physical location of the site is approximately 5.5 miles south-southeast of Hammond, Louisiana, 1.5 miles southeast of Ponchatoula, Louisiana, and adjacent to the new Delatte Recycling, LLC (19113 Weinberger Road, Ponchatoula, Louisiana). The site lies to the north of Weinberger Road, in a rural area with numerous residences within a one-mile radius of the site. The latitude and longitude for the site are 30°25'16"N and 90°24'39"W, respectively. The site is bounded to the south by Weinberger Road followed by residences, to the north and east by drainage ditches and residences, and to the west by Selser's Creek and residences.

According to previous reports, the 19-acre Delatte Metals Superfund Site includes the Delatte Metals, Inc. (DMI) facility and the abandoned North Ponchatoula Battery facility. DMI began business as the Delatte and Fuscia Battery Company in the early 1960's and continued as Delatte Metals, Inc. from the early 1980's until closing in 1993. Its operations included the dismantling of lead-acid batteries and smelting of recovered lead plates into ingots. The Ponchatoula Battery Company moved its operations to a site adjacent to the Delatte and Fuscia Battery Company between 1972 and 1978 and performed identical lead salvage operations and generated the same types of wastes until closing in 1981.

During LDEQ and EPA investigations, discharge from the facilities showed a pH range from 0.55 to 2 standard units (s.u.). Analytical samples from on-site soil and groundwater samples indicated the presence of heavy metals including lead, arsenic, and cadmium. An observed release of lead and cadmium to Selser's Creek was documented by the analytical data from the sediment samples collected at three probable points of entry.

Remedial action (RA) operations were implemented at the site between November of 2002 and September of 2003. During the RA, the principle threat wastes were excavated, immobilized, and transported off-site for disposal. A permeable reactive barrier wall (PRB) was installed to neutralize the acidity of the shallow water-bearing zone and limit the migration of dissolved metals. Following the RA, an O&M Program was initiated to confirm the effectiveness of the selected remedy. The O&M Program initially included groundwater sampling of 31 monitor and water supply wells to verify the metal concentrations and pH in the site groundwater. The O&M Program was modified in September 2013 to include sampling of 44 monitor and water supply wells and five (5) surface water sample locations. This report summarizes the current quarterly site activities pertaining to the onsite and offsite water supply wells only. Data collected by SEMS from the 39 monitor wells and five (5) surface water sample locations included in the O&M Program is reported to the LDEQ semi-annually and is not included in this quarterly report.

Three distinct and local water bearing zones (WBZ) were identified at the site during previous investigations. The three WBZ are located at the site from ground surface to approximately 100 feet below ground surface (ft.-bgs).

- The First WBZ is generally found between 5 and 15 ft.-bgs. This zone is semi-confined on its sides and is overlain by sandy/silty clay across the northern section of the site. During the Remedial Investigation (RI), a clay unit was encountered underneath this First WBZ. Currently 22 monitor wells are screened in this zone. This WBZ was previously classified according to RECAP as a Class 3B aquifer.
- The Second WBZ encountered at the site generally consists of intermittent layers of gray, tan, and orange clayey silt. At various locations, this WBZ is typically encountered

between 15 and 40 ft.-bgs. The Second WBZ appears to be confined and relatively continuous across the site. Currently 13 monitor wells are screened in this zone. This WBZ was previously classified according to RECAP as a Class 2C aquifer.

- The Third WBZ encountered at the site consists of light brown to gray silty sand and sand. During the RI, this Third WBZ was encountered between 58 and 62 ft.-bgs, extending to the maximum depth of the site borings (100 ft.-bgs). The Third WBZ appears to be confined and continuous across the site. There are currently four monitor wells screened in this zone. This WBZ was previously classified according to RECAP as a Class 1B aquifer.

Underneath the three local WBZs identified at the site are three regional aquifers: The Shallow Aquifer (also known as the Upland Terrace Aquifer), the Ponchatoula Aquifer (which is subdivided into two units: the Upper and Lower Ponchatoula Aquifers), and the Tchefuncte Aquifer. The five (5) onsite and offsite water supply wells are screened below the Third WBZ and a summary of the water supply well characteristics is provided as Table 1.

2.0 CHRONOLOGY OF EVENTS

A chronology of events is as follows:

- July 17, 2015 – SEMS submitted the First Semi-Annual 2015 Operation and Maintenance Report to the LDEQ for approval.
- July 17, 2015 – SEMS submitted the Operation and Maintenance Report – Second Quarter 2015 to the LDEQ for approval.
- August 11, 2015 – SEMS mobilized to the site and performed third quarter 2015 O&M activities.

3.0 OPERATION AND MAINTENANCE ACTIVITIES

Operation and maintenance activities include well inspection, PRB inspection, review of institutional controls, groundwater monitoring, and surface water monitoring. The frequency of

sample collection and reporting varies at each sample location. Monitor wells screened in the First and Second WBZ are sampled and reported on a semi-annual basis. Monitor wells screened in the Third WBZ are sampled on an annual basis and the results are included in the semi-annual reports. Surface water is sampled and reported on a semi-annual basis. The onsite and offsite water supply wells are sampled and reported on a quarterly basis. Only the data concerning the onsite and offsite water supply wells is included in this quarterly report. The sampling and reporting schedule for each sample location is provided in **Table 2**.

On August 11, 2015, SEMS mobilized to the site and performed operation and maintenance activities, including the quarterly sampling of the five (5) onsite and offsite water supply wells. Inspection of the wells and the PRB and review of the institutional controls were also performed during this period. Details of activities performed at the site are summarized below.

3.1 ACCESS TO WELLS

Each well was cleared as needed to provide access prior to sampling.

3.2 WELL INSPECTION

The water supply wells were inspected during the groundwater sampling event for damage. **Table 1** includes a listing of the water supply wells at the site and **Figure 1** shows the locations of the wells. The Well Inspection Checklist is included with the field data in Attachment A. No deficiencies were noticed during this sampling event.

3.3 PERMEABLE REACTIVE BARRIER (PRB) INSPECTION

The grass cover of the PRB was mowed by the LDEQ Clearing Contractor prior to the previous sampling event. SEMS inspected the condition of the PRB during the current sampling event and noted the following:

- No cracks or erosion are visible in the PRB.

- Very little evidence of subsidence is apparent in the PRB following the placement of fill material in March of 2014.

The condition of the PRB will continue to be monitored quarterly.

3.4 REVIEW OF INSTITUTIONAL CONTROLS

Tangipahoa Parish Clerk of Court deed files 650403, 674853 and 674854 provide institutional controls restricting site reuse to an industrial scenario. SEMS conducted an online review of these records at the Tangipahoa Parish Clerk of Court website (www.tangiclerk.org) to confirm that they are still on file.

3.5 GROUNDWATER MONITORING, SAMPLING, AND ANALYTICAL PROCEDURES

The two (2) onsite and three (3) offsite water supply wells were sampled during the quarterly groundwater sampling event. The locations of the water supply wells are shown on **Figure 1**.

Groundwater was purged from each water supply wells by opening the valve and allowing the water to flow for a period of 20 minutes. After 20 minutes elapsed, a sample was collected for laboratory analysis. All samples were collected in laboratory-supplied, pre-preserved containers and placed in a cooler with ice. Instantaneous water quality parameters were measured in the field and recorded on the field forms. The water quality parameters are summarized on **Table 3**. The samples were transported to Pace Analytical Services (Pace) in St. Rose, Louisiana for analysis. The samples were shipped accompanied by proper chain-of-custody documentation.

Quality Assurance/Quality Control (QA/QC) samples were collected during the quarterly sampling event in accordance with the O&M Manual. A summary of QA/QC samples collected during the current quarter is included in the field data sheets presented in **Attachment A**.

Groundwater samples were analyzed for Total Metals including arsenic, cadmium, lead, manganese, nickel, and zinc via method SW6020 or SW6010. Summaries of groundwater analytical data are provided in **Table 4** and are further discussed in Section 4.0. A copy of the laboratory reports and chain-of-custody documentation are included in **Attachment B**.

The personal protective equipment and other disposable material that contacted the site groundwater are contained in a 55-gallon metal drum and stored onsite at a holding location south of the “North Well” water supply well. Copies of drum disposal manifests for this quarter, if applicable, are included in **Attachment A**.

It should be noted that additional drums and investigation-derived waste that are generated by the United States Geological Survey (USGS) are located adjacent to the drum storage area. The USGS will maintain their drums from their groundwater sampling events.

4.0 ANALYTICAL DATA REVIEW

4.1 CURRENT PERIOD CONSTITUENT CONCENTRATION

Site Cleanup levels for pH and lead are available in the QAPP prepared for the EPA in September 28, 2004. The Site Cleanup level for lead is 0.015 mg/L. The Site Cleanup level for pH is 7.0 standard units. Since a pH of exactly 7.0 s.u. is not practically obtainable, SEMS recommends that the EPA acceptable range for drinking water, 6.5-8.5 s.u., be utilized as a practicable alternative pH compliance standard for the water supply wells. According to the LDEQ, the LDEQ RECAP Screening Standards (SS) should be used for comparison to the other site COCs.

Below is a brief summary of all COCs exceeding the applicable site limiting standards:

The following onsite and offsite water supply wells were outside their EPA acceptable pH range:

- Samples from the North Well and South Well were above the EPA acceptable pH range of 6.5-8.5 s.u. with a maximum pH reading of 8.87 s.u. at the South Well.

No onsite or offsite water supply wells exhibited arsenic, cadmium, lead, manganese, nickel, or zinc concentrations above RECAP SS or EPA Site Cleanup levels during the current sampling event.

Analytical results for this quarter are summarized in **Table 4**. Concentration Maps prepared for the onsite and offsite water supply wells are presented as **Figures 2** through **8**. Following a review of the water supply well Concentration Maps, all COCs except pH were found to be horizontally delineated to their applicable limiting standard.

4.2 HISTORICAL GROUNDWATER MONITORING TRENDS

A historical summary of the groundwater analytical data from the past eight quarters is presented in **Table 5**. Historical data trend graphs that show pH, arsenic, cadmium, lead, manganese, nickel, and zinc concentrations over time are presented in **Attachment C**. For graphing purposes, the reporting limit was used in place of all non-detected concentrations. The historical data trend graphs were completed in Excel and a linear regression trend line was generated by Excel using the previous eight quarters of data for each COC.

Those onsite and offsite water supply wells exhibiting constituent concentrations above the site cleanup levels or RECAP SS for at least two of the previous eight quarters are reviewed in the trend evaluation. The concentration graphs and linear regression analyses for the water supply wells indicate the following trends:

pH: Above 8.5 s.u. and decreasing: WW-04

Above 8.5 s.u. and stable: North Well and South Well

Lead, Arsenic, Manganese, Nickel, Cadmium, and Zinc: No exceedances observed for any two of the previous eight quarters sampled.

Offsite Water Supply Well Long-Term Trends

Three offsite water supply wells, WW-04, WW-09 and the (b) (6) Well, have at some time in their history demonstrated pH measurements exceeding site cleanup maximum level of 8.5 s.u.; therefore, a trend evaluation was conducted using the complete historical pH data set for these

wells. The available data evaluated for water wells WW-04 and WW-09 range from 2006 to present. The available data evaluated for the (b) (6) Well ranges from 2008 to present. These additional graphs are presented in **Attachment C**.

The trend analysis for water supply well WW-04 shows an overall increasing trend for the historical data since 2006 but a decreasing trend over the most recent eight quarters. Water well WW-09 shows a decreasing pH trend over the historical data set since 2006 with an increasing trend over the most recent eight quarters. The pH trend noted at the (b) (6) Well has been slightly increasing since 2008, including the most recent eight quarters.

4.3 QUALITY ASSURANCE/QUALITY CONTROL AND UNUSUAL FINDINGS

A summary of QA/QC samples collected during the current quarter is included in the field data sheets presented in Attachment A. QA/QC samples include at least one duplicate for every 10 samples, one matrix spike for every 20 samples, and one matrix spike duplicate for every 20 samples. One duplicate sample, (Duplicate at (b) (6) Well), was collected during the current quarter. All QA/QC duplicate sample analytical results were reported within a factor of 10 of the original analytical sample results. All data sets were accepted. Full laboratory analytical reports from Pace are included in **Attachment B**. Each laboratory analytical report includes laboratory QA/QC documentation.

The Pace analytical data was reviewed by Environmental Data Professional, LLC (eDATApro), a third party data validator. eDATApro reviewed ten percent of the samples analyzed including the South Well sample. No changes were made to this report as a result of the data validation.

No major discrepancies were found in the data validation report, which is included in Attachment D. The Pace Level IV analytical report is attached to this report with a compact disk (CD) in an electronic format as requested by LDEQ.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on evaluation of data presented within this groundwater monitoring report.

- SEMS recommends continuing with quarterly O&M of the onsite and offsite water supply wells.

TABLES

TABLE 1
WATER SUPPLY WELL DATA
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

Well ID	Address	Depth (feet)	Date Installed
WW-04*	39229 Keaghey Road Ponchatoula, LA 70454	Unknown	Unknown
WW-09*	39233 Keaghey Road Ponchatoula. LA70454	60	10/94
North Well	19119 Weinberger Road Ponchatoula. LA 70454	Unknown	Unknown
South Well	19113 Weinberger Road Ponchatoula, LA 70454	Unknown	Unknown
(b) (6) Well**	Keaghey Road Ponchatoula. LA70454	Unknown	Unknown

Notes: Water Well

*Designations for water wells WW-04 and WW-09 were obtained from the Delatte Metals Remedial Investigation Report (Tetra Tech 2000)

**Designation was named in field based on current owner's name.

TABLE 2
SAMPLING AND REPORTING SCHEDULE

Delatte Metals Superfund Site
Ponchatoula, Louisiana
Agency Interest No. 2328

(Page 1 of 2)

Sample ID	Sample Collection Frequency	Reporting Frequency	Analyses Required
First Water-Bearing Zone Monitoring Wells			
DW-1	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
DW-2	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
DW-3	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
MW-1	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
MW-2	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
MW-6	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
PW-4	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-03	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-09	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
GSGP-3	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-6	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-15	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-18	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-19	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-22	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-01	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-02	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-03	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-04	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-05	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-06	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
TEPA-P7D	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides

Notes: 1) * All monitoring wells will be sampled for total metals. Monitoring wells will be sampled for dissolved metals as needed based upon turbidity readings in the field. All surface water samples will be sampled for both total and dissolved metals.

2) ** Monitoring wells in the 3rd WBZ will be sampled annually and the results will be included in the semi-annual report.

TABLE 2
SAMPLING AND REPORTING SCHEDULE

Delatte Metals Superfund Site
Ponchatoula, Louisiana
Agency Interest No. 2328

(Page 2 of 2)

Sample ID	Sample Collection Frequency	Reporting Frequency	Analyses Required
Second Water-Bearing Zone Monitoring Wells			
DW-4	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
MW-A	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
MW-3	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
MW-4	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-01	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-05	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-09A	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-03	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-17	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-19	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-21R	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-25	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
Third-Water-Bearing Zone Monitoring Wells			
BA-03A	Annual	Semi-Annual**	Total and Dissolved Metals*
BA-05A	Annual	Semi-Annual**	Total and Dissolved Metals*
BB-01	Annual	Semi-Annual**	Total and Dissolved Metals*
BA-01A	Annual	Semi-Annual**	Total and Dissolved Metals*
Water Supply Wells			
WW-04	Quarterly	Quarterly	Total Metals
WW-09	Quarterly	Quarterly	Total Metals
North Well	Quarterly	Quarterly	Total Metals
South Well	Quarterly	Quarterly	Total Metals
(b) (6) Well	Quarterly	Quarterly	Total Metals
Surface Water			
CA-41	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
CA-51	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
CL-05	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
CL-19	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
Bridge	Semi-Annual	Semi-Annual	Total and Dissolved Metals*

Notes: 1) * All monitoring wells will be sampled for total metals. Monitoring wells will be sampled for dissolved metals as needed based upon turbidity readings in the field. All surface water samples will be sampled for both total and dissolved metals.

2) ** Monitoring wells in the 3rd WBZ will be sampled annually and the results will be included in second-half semi-annual reports.

TABLE 3
GROUNDWATER SAMPLING SUMMARY
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328
(Past 8 Quarters)

Monitoring/ Sample Well No. & Date	Groundwater Elevation			Groundwater Quality Data					
	TOC Elevation (ft-NGVD)	Depth to Water (feet)	Corrected GW Elev. (ft-NGVD)	Temperature (°C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (Standard Units)	ORP (mV)	Turbidity (NTU)
WATER WELLS									
(b) (6) Well									
December-13	NA	NA	NA	18.88	0.292	2.19	7.87	-175	2.5
March-14	NA	NA	NA	21.54	0.295	2.89	8.21	-62	2.0
June-14	NA	NA	NA	22.33	0.289	2.06	7.02	-143	1.3
August-14	NA	NA	NA	25.18	0.078	2.69	8.22	-48	0.9
October-14	NA	NA	NA	20.99	0.298	5.30	7.80	-109	0.0
January-15	NA	NA	NA	20.35	0.331	2.34	8.13	224	3.2
May-15	NA	NA	NA	21.45	0.291	5.91	8.27	-96	0.9
August-15	NA	NA	NA	23.08	0.306	2.39	8.24	-212	1.2
WW-04									
December-13	NA	NA	NA		0.297	3.99	9.09	-239	1.5
March-14	NA	NA	NA	20.90	0.300	2.21	8.59	-114	2.7
June-14	NA	NA	NA	21.01	0.300	5.82	8.29	-223	0.6
August-14	NA	NA	NA	24.48	0.302	2.26	8.47	-156	0.8
October-14	NA	NA	NA	20.75	0.304	5.38	8.61	-171	0.1
January-15	NA	NA	NA	19.28	0.301	2.78	8.67	164	5.1
May-15	NA	NA	NA	21.26	0.294	3.28	8.35	-166	2.5
August-15	NA	NA	NA	21.81	0.338	3.12	8.50	-183	1.9
WW-09									
December-13	NA	NA	NA	16.19	0.184	4.85	7.98	-68	4.0
March-14	NA	NA	NA	19.99	0.297	4.25	8.17	-57	1.6
June-14	NA	NA	NA	22.31	0.297	5.93	7.49	-148	1.2
August-14	NA	NA	NA	23.54	0.300	1.59	8.36	-72	2.6
October-14	NA	NA	NA	20.66	0.298	7.96	7.65	-77	1.9
January-15	NA	NA	NA	17.48	0.298	6.50	8.61	196	4.3
May-15	NA	NA	NA	21.40	0.309	6.48	8.41	-63	2.6
August-15	NA	NA	NA	23.15	0.306	6.56	8.48	-216	0.6
North Well									
December-13	NA	NA	NA	20.44	0.293	1.00	8.82	242	1.8
March-14	NA	NA	NA	22.90	0.316	1.83	9.10	-77	3.5
June-14	NA	NA	NA	22.77	0.293	1.77	8.61	-232	0.0
August-14	NA	NA	NA	25.38	0.294	1.10	8.37	-101	0.2
October-14	NA	NA	NA	23.66	0.303	1.87	8.54	212	0.7
January-15	NA	NA	NA	21.63	0.296	1.99	8.86	181	3.8
May-15	NA	NA	NA	22.75	0.307	1.77	8.91	-99	1.4
August-15	NA	NA	NA	24.42	0.304	2.97	8.80	-246	1.4
South Well									
December-13	NA	NA	NA	19.37	0.294	2.39	9.60	-156	1.9
March-14	NA	NA	NA	21.09	0.297	1.81	8.37	-80	2.1
June-14	NA	NA	NA	22.40	0.301	3.17	8.62	67	0.1
August-14	NA	NA	NA	22.04	0.312	2.0	8.31	-151	0.8
October-14	NA	NA	NA	21.92	0.302	2.28	8.94	-132	1.0
January-15	NA	NA	NA	19.08	0.300	1.70	9.08	183	3.3
May-15	NA	NA	NA	22.03	0.309	4.34	8.86	-79	2.7
August-15	NA	NA	NA	22.83	0.305	3.80	8.87	-210	1.0

Notes: 1) Top-of-casing (TOC) elevation - (depth to fluid) = Corrected GROUNDWATER (GW) elevation
2) Additional quarters will be added as sampling events continue
Abbrev.: NA = Not Applicable mg/L = milligrams per Liter NF = Not Found
NM = Not Measured NS = Not Sampled

TABLE 4
CURRENT QUARTER GROUNDWATER ANALYTICAL SUMMARY
TOTAL METALS

Delatte Metals Superfund Site
Ponchatoula, Louisiana
Agency Interest No. 2328

Line #	COC/CAS	Method	Sample ID	Media	Lab Sample Identification	Sample Date	Option Used	Limiting Standard mg/L	Reporting Limit mg/L	Sample Result mg/L	QA/QC Flag	Exceed Limiting Standard
1	Total Arsenic/7440-38-2	EPA 6020	NORTH WELL	Groundwater	2023947003	8/11/2015	RECAP SS	0.01	0.001	<0.001		No
2	Total Cadmium/7440-43-9	EPA 6020	NORTH WELL	Groundwater	2023947003	8/11/2015	RECAP SS	0.005	0.001	<0.001		No
3	Total Lead/7439-92-1	EPA 6020	NORTH WELL	Groundwater	2023947003	8/11/2015	EPA Site Cleanup	0.015	0.001	0.0027		No
4	Total Manganese/7439-96-5	EPA 6020	NORTH WELL	Groundwater	2023947003	8/11/2015	RECAP SS	0.51	0.001	0.0048		No
5	Total Nickel/7440-02-0	EPA 6020	NORTH WELL	Groundwater	2023947003	8/11/2015	RECAP SS	0.073	0.001	<0.001		No
6	Total Zinc/7440-66-6	EPA 6020	NORTH WELL	Groundwater	2023947003	8/11/2015	RECAP SS	1.1	0.005	<0.005		No
7	Total Arsenic/7440-38-2	EPA 6020	(b) (6) WELL	Groundwater	2023947004	8/11/2015	RECAP SS	0.01	0.001	0.0015		No
8	Total Cadmium/7440-43-9	EPA 6020	(b) (6) WELL	Groundwater	2023947004	8/11/2015	RECAP SS	0.005	0.001	<0.001		No
9	Total Lead/7439-92-1	EPA 6020	(b) (6) WELL	Groundwater	2023947004	8/11/2015	EPA Site Cleanup	0.015	0.001	<0.001		No
10	Total Manganese/7439-96-5	EPA 6020	(b) (6) WELL	Groundwater	2023947004	8/11/2015	RECAP SS	0.51	0.001	0.0217		No
11	Total Nickel/7440-02-0	EPA 6020	(b) (6) WELL	Groundwater	2023947004	8/11/2015	RECAP SS	0.073	0.001	<0.001		No
12	Total Zinc/7440-66-6	EPA 6020	(b) (6) WELL	Groundwater	2023947004	8/11/2015	RECAP SS	1.1	0.005	<0.005		No
13	Total Arsenic/7440-38-2	EPA 6020	SOUTH WELL	Groundwater	2023947005	8/11/2015	RECAP SS	0.01	0.001	<0.001		No
14	Total Cadmium/7440-43-9	EPA 6020	SOUTH WELL	Groundwater	2023947005	8/11/2015	RECAP SS	0.005	0.001	<0.001		No
15	Total Lead/7439-92-1	EPA 6020	SOUTH WELL	Groundwater	2023947005	8/11/2015	EPA Site Cleanup	0.015	0.001	<0.001		No
16	Total Manganese/7439-96-5	EPA 6020	SOUTH WELL	Groundwater	2023947005	8/11/2015	RECAP SS	0.51	0.001	0.0041		No
17	Total Nickel/7440-02-0	EPA 6020	SOUTH WELL	Groundwater	2023947005	8/11/2015	RECAP SS	0.073	0.001	<0.001		No
18	Total Zinc/7440-66-6	EPA 6020	SOUTH WELL	Groundwater	2023947005	8/11/2015	RECAP SS	1.1	0.005	0.006		No
19	Total Arsenic/7440-38-2	EPA 6020	WW-04	Groundwater	2023947002	8/11/2015	RECAP SS	0.01	0.001	<0.001		No
20	Total Cadmium/7440-43-9	EPA 6020	WW-04	Groundwater	2023947002	8/11/2015	RECAP SS	0.005	0.001	<0.001		No
21	Total Lead/7439-92-1	EPA 6020	WW-04	Groundwater	2023947002	8/11/2015	EPA Site Cleanup	0.015	0.001	<0.001		No
22	Total Manganese/7439-96-5	EPA 6020	WW-04	Groundwater	2023947002	8/11/2015	RECAP SS	0.51	0.001	0.0029		No
23	Total Nickel/7440-02-0	EPA 6020	WW-04	Groundwater	2023947002	8/11/2015	RECAP SS	0.073	0.001	<0.001		No
24	Total Zinc/7440-66-6	EPA 6020	WW-04	Groundwater	2023947002	8/11/2015	RECAP SS	1.1	0.005	<0.005		No
25	Total Arsenic/7440-38-2	EPA 6020	WW-09	Groundwater	2023947006	8/11/2015	RECAP SS	0.01	0.001	<0.001		No
26	Total Cadmium/7440-43-9	EPA 6020	WW-09	Groundwater	2023947006	8/11/2015	RECAP SS	0.005	0.001	<0.001		No
27	Total Lead/7439-92-1	EPA 6020	WW-09	Groundwater	2023947006	8/11/2015	EPA Site Cleanup	0.015	0.001	<0.001		No
28	Total Manganese/7439-96-5	EPA 6020	WW-09	Groundwater	2023947006	8/11/2015	RECAP SS	0.51	0.001	0.0186		No
29	Total Nickel/7440-02-0	EPA 6020	WW-09	Groundwater	2023947006	8/11/2015	RECAP SS	0.073	0.001	<0.001		No
30	Total Zinc/7440-66-6	EPA 6020	WW-09	Groundwater	2023947006	8/11/2015	RECAP SS	1.1	0.005	<0.005		No

HISTORICAL GROUNDWATER MONITORING SUMMARY

DELATTE METALS SUPERFUND SITE

PONCHATOULA, LOUISIANA

AGENCY INTEREST NO. 2328

Monitoring/Sampling Period: Past 8 Quarters

	Potentiometric Data			Groundwater Analytical Data											
	TOC Elevation (ft-NGVD)	Depth to Water (feet)	Corrected GW Elev. (ft-NGVD)	pH Standard Unit	Total Metals					Dissolved Metals					
					Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)
WATER WELLS															
	NA	NA	NA	7.87	0.00157 J	< 0.001	0.00145	0.0233	< 0.001 J	< 0.005 J	NA	NA	NA	NA	NA
	NA	NA	NA	8.21	0.0016	< 0.001	0.0013	0.0218	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	7.02	0.0015	< 0.0010	0.0011	0.0416	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.22	0.0017	< 0.0010	< 0.0010	0.0243	< 0.0010	0.0063	NA	NA	NA	NA	NA
	NA	NA	NA	7.80	0.0016	< 0.0010	< 0.0010	0.0231	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.13	0.0015	< 0.0010	< 0.0010	0.0231	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.27	0.0015	< 0.0010	< 0.0010	0.0231	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.24	0.0015	< 0.0010	< 0.0010	0.0217	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	9.09	< 0.001	< 0.001	< 0.001	0.00315	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.59	< 0.001	< 0.001	< 0.001	0.0018	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.29	< 0.0010	< 0.0010	< 0.0010	0.0031	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.47	< 0.0010	< 0.0010	< 0.0010	0.0062	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.61	< 0.0010	< 0.0010	< 0.0010	0.0028	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.67	< 0.0010	< 0.0010	< 0.0010	0.0032	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.35	< 0.0010	< 0.0010	< 0.0010	0.0032	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.50	< 0.0010	< 0.0010	< 0.0010	0.0029	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	7.98	< 0.001	< 0.001	< 0.001	0.0178	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.17	< 0.001	< 0.001	< 0.001	0.0165	0.0041	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	7.49	< 0.0010	< 0.0010	< 0.0010	0.0181	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.36	< 0.0010	< 0.0010	< 0.0010	0.0203	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	7.65	< 0.0010	< 0.0010	< 0.0010	0.0188	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.61	< 0.0010	< 0.0010	< 0.0010	0.0189	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.41	< 0.0010	< 0.0010	< 0.0010	0.0191	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.48	< 0.0010	< 0.0010	< 0.0010	0.0186	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.82	< 0.001	< 0.001	< 0.001	0.00366	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	9.10	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.61	< 0.0010	< 0.0010	< 0.0010	0.0033	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.37	< 0.0010	< 0.0010	0.004	0.0085	< 0.0010	0.0079	NA	NA	NA	NA	NA
	NA	NA	NA	8.54	< 0.0010	< 0.0010	< 0.0010	0.0034	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.86	< 0.0010	< 0.0010	< 0.0010	0.0027	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.91	< 0.0010	< 0.0010	< 0.0010	0.0053 J	< 0.0010 J	< 0.0050 J	NA	NA	NA	NA	NA
	NA	NA	NA	8.80	< 0.0010	< 0.0010	0.0027	0.0048	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
EANUP or LDEQ RECAP SS				6.5-8.5	0.010	0.005	0.015	0.51	0.073	1.1	0.010	0.005	0.015	0.51	0.073

HISTORICAL GROUNDWATER MONITORING SUMMARY

DELATTE METALS SUPERFUND SITE

PONCHATOULA, LOUISIANA

AGENCY INTEREST NO. 2328

Monitoring/Sampling Period: Past 8 Quarters

	Potentiometric Data			Groundwater Analytical Data											
	TOC Elevation (ft-NGVD)	Depth to Water (feet)	Corrected GW Elev. (ft-NGVD)	pH Standard Unit	Total Metals						Dissolved Metals				
					Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nicke (mg/L)
WATER WELLS															
3	NA	NA	NA	9.60	< 0.001	< 0.001	< 0.001	0.00385	< 0.001	0.0144	NA	NA	NA	NA	NA
	NA	NA	NA	8.37	< 0.001	< 0.001	< 0.001	0.0026	< 0.001	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.62	< 0.0010	< 0.0010	< 0.0010	0.0037	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.31	< 0.0010	< 0.0010	< 0.0010	0.0042	< 0.0010	0.0199	NA	NA	NA	NA	NA
	NA	NA	NA	8.94	<0.0010	<0.0010	<0.0010	0.0035	<0.0010	0.0168	NA	NA	NA	NA	NA
	NA	NA	NA	9.08	<0.0010	<0.0010	<0.0010	0.0040	<0.0010	0.0099	NA	NA	NA	NA	NA
	NA	NA	NA	8.86	<0.0010	<0.0010	<0.0010	0.0044	<0.0010	0.0089	NA	NA	NA	NA	NA
	NA	NA	NA	8.87	<0.0010	<0.0010	<0.0010	0.0041	<0.0010	0.006	NA	NA	NA	NA	NA
CLEANUP or LDEQ RECAP SS				6.5-8.5	0.010	0.005	0.015	0.51	0.073	1.1	0.010	0.005	0.015	0.51	0.073

f-casing (TOC) elevation - (depth to fluid) = Corrected GROUNDWATER (GW) elevation

Specific cleanup standards were found in previous reports for Lead and pH only. The additional screening standards are from the LDEQ RECAP Screening Standards (SS), were provided by the LDEQ.

ate Cleanup Standard for pH = 7.0 s.u.; however EPA Drinking Water Standards for pH = 6.5-8.5 s.u. and the EPA Storm Water Discharge Standards for 4-9.0 s.u are being used for comparison purposes.

values Exceed Site Cleanup or RECAP SS

ing Limits from the analytical reports are used for non-detect results

ot Applicable mg/L= milligrams per Liter NF = Not Found

Not Measured NS=Not Sampled

rorogate Recovery Unreportable due to Dilution

recovery in the Matrix Spike and Matrix Spike Duplicate exceeded the control limit acceptance criteria E= Concentrations Exceeding Calibration Rand of Instrument

J = Flagged by lab - An estimated value between the MDL and PQL is provided.

B/V = Analyte Detected in the associated Method Blank above Rep. Limit

FIGURES



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕ WATER SUPPLY WELL

330 0 330
APPROXIMATE SCALE IN FEET

DRAWN BY:	LDG	CHECKED BY:	<i>LDG</i>	DRAWING NO.
	01/06/14	APPROVED BY:	<i>LDG</i>	WW

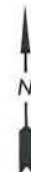


FIGURE 1

WATER WELL LOCATION MAP

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.



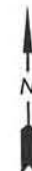
REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

- ⊕ WATER SUPPLY WELL
- mg/L MILLIGRAMS PER LITER
- (<0.001) LEAD CONCENTRATION IN mg/L

NOTE:

THE EPA CLEANUP LEVEL FOR pH IS 7.0 S.U..
THE EPA ACCEPTABLE RANGE FOR
DRINKING WATER, 6.5-8.5 S.U. IS USED HERE.

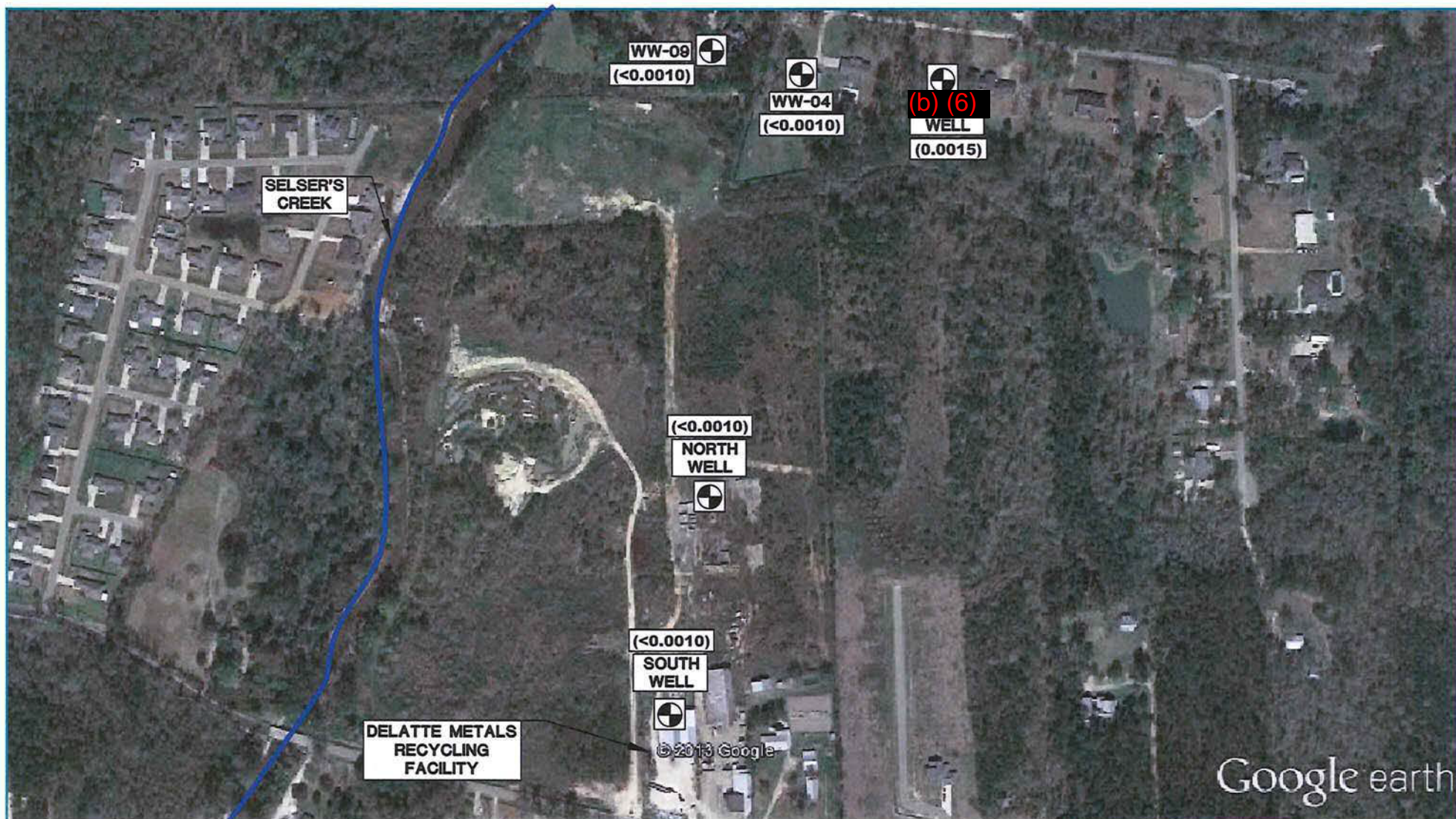


330 0 330
APPROXIMATE SCALE IN FEET

DRAWN BY:	LDG/LB	CHECKED BY:	<i>[Signature]</i>	DRAWING NO.
	11/16/15	APPROVED BY:	<i>[Signature]</i>	QTR/001

FIGURE 2
WATER WELL
pH CONCENTRATION MAP
(THIRD QUARTER 2015)
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328
PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.



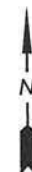
REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕ WATER SUPPLY WELL
 mg/L MILLIGRAMS PER LITER
 (<0.001) ARSENIC CONCENTRATION IN mg/L

NOTES:

- 1) NO SITE CLEANUP STANDARDS WERE FOUND FOR ARSENIC. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.01 mg/L.
- 2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR ARSENIC.



330 0 330
 APPROXIMATE SCALE IN FEET

DRAWN BY:	LDG/LB	CHECKED BY:	<i>[Signature]</i>	DRAWING NO.
	11/16/15	APPROVED BY:	<i>[Signature]</i>	QTR/002

FIGURE 3
WATER WELL
ARSENIC CONCENTRATION MAP
(THIRD QUARTER 2015)
 DELATTE METALS SUPERFUND SITE
 PONCHATOULA, LOUISIANA
 AGENCY INTEREST NO. 2328
 PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

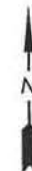
LEGEND

- ⊕ WATER SUPPLY WELL
- mg/L MILLIGRAMS PER LITER
- (<0.001) CADMIUM CONCENTRATION IN mg/L

330 0 330
APPROXIMATE SCALE IN FEET

NOTES:

- 1) NO SITE CLEANUP STANDARDS WERE FOUND FOR CADMIUM. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.005 mg/L.
- 2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR CADMIUM.

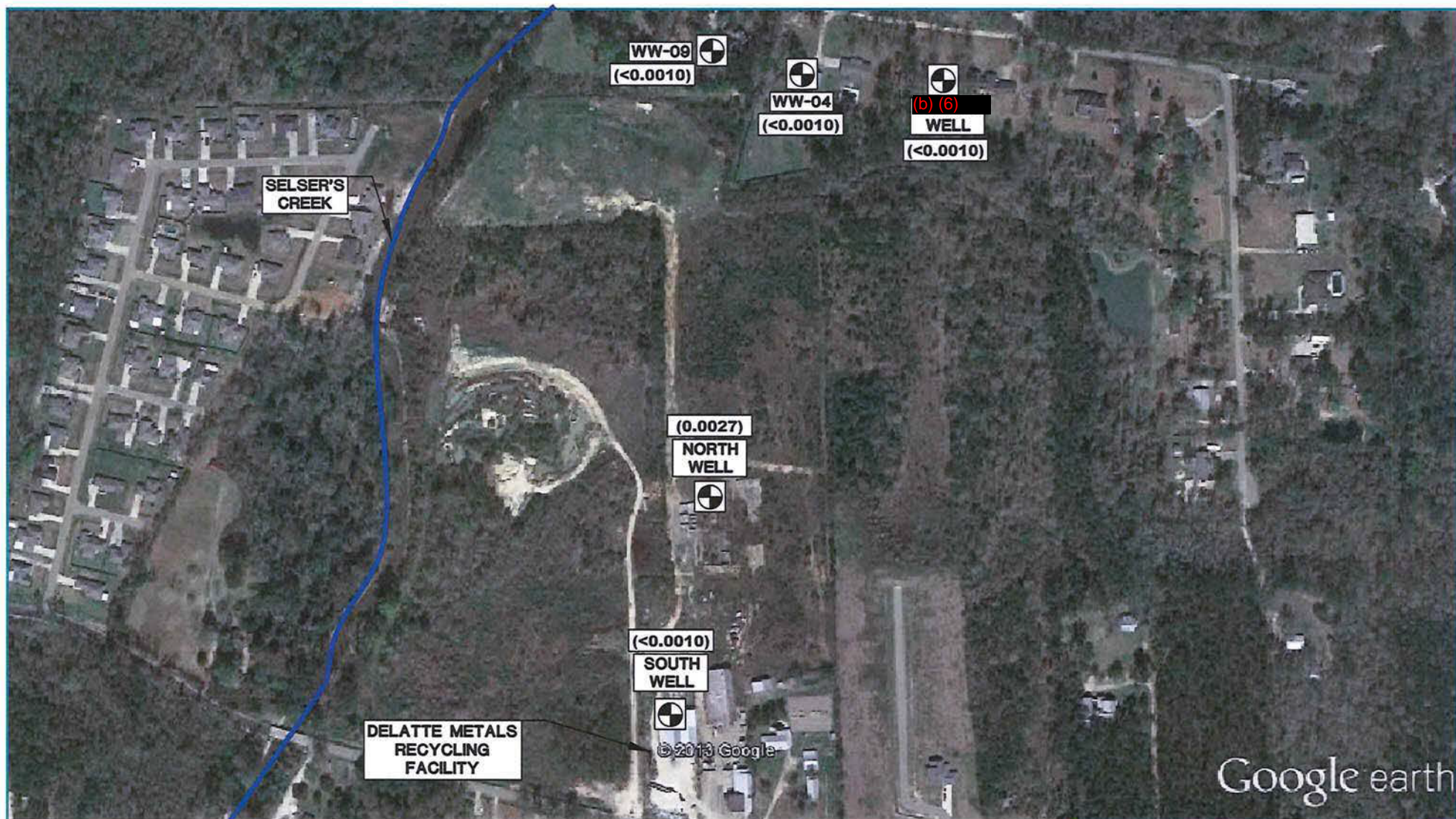


DRAWN BY:	LDG/LB	CHECKED BY:	<i>[Signature]</i>	DRAWING NO.
	11/16/15	APPROVED BY:	<i>[Signature]</i>	QTR/003

FIGURE 4
WATER WELL
CADMIUM CONCENTRATION MAP
(THIRD QUARTER 2015)


DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328
PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.



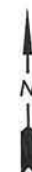
REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

 WATER SUPPLY WELL
 mg/L MILLIGRAMS PER LITER
 (<0.001) LEAD CONCENTRATION IN mg/L

NOTES:

- 1) THE EPA SITE CLEANUP STANDARD FOR LEAD IS 0.015 mg/L.
- 2) NO WELLS SAMPLED EXCEEDED THE EPA SITE CLEANUP STANDARD.



330 0 330
 APPROXIMATE SCALE IN FEET

DRAWN BY:	LDG/LB	CHECKED BY:	<i>[Signature]</i>	DRAWING NO.
	11/16/15	APPROVED BY:	<i>[Signature]</i>	QTR/004

FIGURE 5
WATER WELL
LEAD CONCENTRATION MAP
(THIRD QUARTER 2015)
 DELATTE METALS SUPERFUND SITE
 PONCHATOU LA, LOUISIANA
 AGENCY INTEREST NO. 2328
 PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY


SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

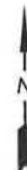
LEGEND

- ⊕ WATER SUPPLY WELL
- mg/L MILLIGRAMS PER LITER
- (0.0181) MANGANESE CONCENTRATION IN mg/L

330 0 330
APPROXIMATE SCALE IN FEET

NOTES:

- 1) NO SITE CLEANUP STANDARDS WERE FOUND FOR MANGANESE. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.51 mg/L.
- 2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR MANGANESE.



DRAWN BY:	LDG/LB	CHECKED BY:	<i>LDG</i>	DRAWING NO.
	11/16/15	APPROVED BY:	<i>LDG</i>	QTR/005

FIGURE 6
WATER WELL
MANGANESE CONCENTRATION
MAP (THIRD QUARTER 2015)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

- ⊕ WATER SUPPLY WELL
- mg/L MILLIGRAMS PER LITER
- (<0.001) NICKEL CONCENTRATION IN mg/L

330 0 330
APPROXIMATE SCALE IN FEET

NOTES:

- 1) NO SITE CLEANUP STANDARDS WERE FOUND FOR NICKEL. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.073 mg/L.
- 2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR NICKEL.

DRAWN BY:	LDG/LB	CHECKED BY:	<i>LDG</i>	DRAWING NO.
	11/16/15	APPROVED BY:	<i>LDG</i>	QTR/006

FIGURE 7
WATER WELL
NICKEL CONCENTRATION MAP
(THIRD QUARTER 2015)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328
PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

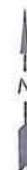
LEGEND

- ⊕ WATER SUPPLY WELL
- mg/L MILLIGRAMS PER LITER
- (<0.005) ZINC CONCENTRATION IN mg/L

330 0 330
APPROXIMATE SCALE IN FEET

NOTES:

- 1) NO SITE CLEANUP STANDARDS WERE FOUND FOR ZINC. SEMS USED LDEQ RECAP SCREENING STANDARD OF 1.1 mg/L.
- 2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR ZINC.



DRAWN BY:	LDG/LB	CHECKED BY	DRAWING NO. QTR/007
	11/16/15	APPROVED BY	

FIGURE 8 WATER WELL ZINC CONCENTRATION MAP (THIRD QUARTER 2015)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

SEMS Inc.

ATTACHMENT A
FIELD DATA SHEETS & WASTE MANIFESTS

PAGE 1 OF 2

Date: 8/11/2015

Activities: Notify facility of arrival. Inspect

facility monitoring wells and PRB for integrity.

Gauge, and sample appropriate wells.

Notes & Observations

☒ YES ☐ NO

Departed : (1700)

Quantity

5

—

1

© 2000 Blackwell Science Ltd

Keywords:

—

1

1

Employee Signature:


SEMS, Inc.

DELATTE METALS SUPERFUND SITE OPERATION AND MAINTENANCE ACTIVITY LOG

PAGE 2 OF 2

SEMS EQUIPMENT & MATERIALS USED

[illegible]

Employee Name:

Nick Rockenost

Employee Signature:

[Handwritten signature]

SEMS, Inc.

Delatte Metals O&M QA/QC Checklist

Page 1 of 1

SEMS Project #: 207-0029

Field Crew: Nick Rothenst

MS/MSD (Every 20 Samples)

Field Duplicate (Every 10 Samples)

[illegible]

LOW-FLOW GROUNDWATER SAMPLING LOG

DUP

Project: Delatte Metals Superfund Site
 Project No.: 207-0029
 Site Location: Ponchatoula, Louisiana
 Monitor Well No.: (b) (6) Well
 Date Purged/Sampled: 8/11/15 Sampled By: NR

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): UNK ft.
 Static Depth to Groundwater (DTW): UNK ft.
 Screen Length (SL) from Boring Logs: UNK ft.
 Depth to Top of Well Screen (TD-SL): UNK ft.
 Height of Water Column (H=TD-DTW): UNK ft.
 Purge Flow Rate: _____ mL/min
 Volume Purged: _____ gallons
 Date/Time of Sample: 8/11/15 @ 1430 Time

WELL CASING VOLUME CALCULATIONS

- ☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify) _____

METHOD OF SAMPLE COLLECTION

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (If >10 NTU or FTU)	<0.3 ft. or Top of Screen
1415	—	—	—	—	—	—	—	—
1430	—	23.08	0.306	2.39	8.24	-212	1.2	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
 2. Take measurements every 3 to 5 minutes.

Total Metals Collected	X	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	
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SHEET 1 OF 1

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
 Project No.: 207-0029
 Site Location: Ponchatoula, Louisiana
 Monitor Well No.: North Well
 Date Purged/Sampled: 8/11/15 Sampled By: NR

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): UNK ft.
 Static Depth to Groundwater (DTW): UNK ft.
 Screen Length (SL) from Boring Logs: UNK ft.
 Depth to Top of Well Screen (TD-SL): UNK ft.
 Height of Water Column (H=TD-DTW): UNK ft.
 Purge Flow Rate: _____ mL/min
 Volume Purged: _____ gallons
 Date/Time of Sample: 8/11/15 @ 1530 Time

WELL CASING VOLUME CALCULATIONS

- ☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify) _____

METHOD OF SAMPLE COLLECTION

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (If >10 NTU or FTU)	<0.3 ft. or Top of Screen
1515	—	—	—	—	—	—	—	—
1530	—	24.42	0.304	2.97	8.80	-246	1.4	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
 2. Take measurements every 3 to 5 minutes.

Total Metals Collected	<input checked="" type="checkbox"/>	Dissolved Metals Collected	<input type="checkbox"/>	Sulfates Collected	<input type="checkbox"/>	Sulfides Collected	<input type="checkbox"/>
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SHEET 1 OF 1

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
 Project No.: 207-0029
 Site Location: Ponchatoula, Louisiana
 Monitor Well No.: South Well
 Date Purged/Sampled: 8/11/15 Sampled By: NJR

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): UNK ft.
 Static Depth to Groundwater (DTW): UNK ft.
 Screen Length (SL) from Boring Logs: UNK ft.
 Depth to Top of Well Screen (TD-SL): UNK ft.
 Height of Water Column (H=TD-DTW): UNK ft.
 Purge Flow Rate: _____ mL/min
 Volume Purged: _____ gallons
 Date/Time of Sample: 8/11/15@1600 Time

WELL CASING VOLUME CALCULATIONS

- ☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify) _____

METHOD OF SAMPLE COLLECTION

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if > 10 NTU or FTU)	< 0.3 ft. or Top of Screen
1545	—	—	—	—	—	—	—	—
1600	—	22.83	0.305	3.80	8.87	-210	1.0	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
 2. Take measurements every 3 to 5 minutes.

Total Metals Collected	<input checked="" type="checkbox"/>	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	
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SHEET 1 OF 1

MS/MSO

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
 Project No.: 207-0029
 Site Location: Ponchatoula, Louisiana
 Monitor Well No.: WW-04
 Date Purged/Sampled: 8/11/15 Sampled By: NR

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): UNK ft.
 Static Depth to Groundwater (DTW): UNK ft.
 Screen Length (SL) from Boring Logs: UNK ft.
 Depth to Top of Well Screen (TD-SL): UNK ft.
 Height of Water Column (H=TD-DTW): UNK ft.
 Purge Flow Rate: _____ mL/min
 Volume Purged: _____ gallons
 Date/Time of Sample: 8/11/15 @ 1400 Time

WELL CASING VOLUME CALCULATIONS

- ☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify) _____

METHOD OF SAMPLE COLLECTION

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if >10 NTU or FTU)	<0.3 ft. or Top of Screen
1345	—							
1400	—	21.81	0.338	3.12	8.50	-183	1.9	

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
 2. Take measurements every 3 to 5 minutes.

Total Metals Collected	<input checked="" type="checkbox"/>	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	
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SHEET 1 OF 1

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
 Project No.: 207-0029
 Site Location: Ponchatoula, Louisiana
 Monitor Well No.: WW-09
 Date Purged/Sampled: 8/11/15 Sampled By: NR

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 60 ft.
 Static Depth to Groundwater (DTW): UNK ft.
 Screen Length (SL) from Boring Logs: ↓ ft.
 Depth to Top of Well Screen (TD-SL): ↓ ft.
 Height of Water Column (H=TD-DTW): ↓ ft.
 Purge Flow Rate: _____ mL/min
 Volume Purged: _____ gallons
 Date/Time of Sample: 8/11/15 @ 1500 Time

WELL CASING VOLUME CALCULATIONS

- ☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify) _____

METHOD OF SAMPLE COLLECTION

- ☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 min

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (If > 10 NTU or FTU)	< 0.3 ft. or Top of Screen
1445	—	—	—	—	—	—	—	—
1500	—	23.15	0.306	6.56	8.48	-216	0.6	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
 2. Take measurements every 3 to 5 minutes.

Total Metals Collected	<u>X</u>	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	
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SHEET 1 OF 1

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A

Section B

Section C

Required Client Information:

Required Project Information:

Invoice Information:

Company: SEMS Baton Rouge, Inc.	Report To: Rodehorst, Nick	Attention:
Address: 3801 N. Causeway Blvd	Copy To:	Company Name:
Suite 209, Metairie, LA 70002		Address:
Email:	Purchase Order #:	Price Quote:
Phone: Fax:	Project Name: Delatte	Price Project Manager: william.shackelford@pacelabs.com,
Requested Due Date:	Project #:	Price Profile #: 6306 line 1

Regulatory Agency	LA
State / Location	LA

[illegible]

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
PPH Run As Cd, Pb, Mn, Ni, and Zn only.	SEMS Inc. / Nick Kerkorian 12/22/2015						

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples intact
PRINT Name of SAMPLER: Nick Rodenhorst						
SIGNATURE of SAMPLER: [Signature] DATE Signed: 8/14/15						

ATTACHMENT B
LABORATORY ANALYTICAL REPORT

September 09, 2015

Nick Rodehorst
SEMS
3801 N. Causeway Blvd
Metairie, LA 70002

RE: Project: Delatte Metals
Pace Project No.: 2023947

Dear Nick Rodehorst:

Enclosed are the analytical results for sample(s) received by the laboratory on August 12, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



William Shackelford
william.shackelford@pacelabs.com
Project Manager

Enclosures

cc: Larry Braud, SEMS
Lab Data, SEMS, Inc.
Brian Sullivan, SEMS



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Delatte Metals
Pace Project No.: 2023947

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):

E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):

02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):

T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-

00119

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SAMPLE SUMMARY

Project: Delatte Metals
Pace Project No.: 2023947

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2023947001	DUPLICATE	Water	08/11/15 14:30	08/12/15 11:45
2023947002	WW-04	Water	08/11/15 14:00	08/12/15 11:45
2023947003	NORTH WELL	Water	08/11/15 15:30	08/12/15 11:45
2023947004	(b) (6) WELL	Water	08/11/15 14:30	08/12/15 11:45
2023947005	SOUTH WELL	Water	08/11/15 16:00	08/12/15 11:45
2023947006	WW-09	Water	08/11/15 15:00	08/12/15 11:45

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SAMPLE ANALYTE COUNT

Project: Delatte Metals
Pace Project No.: 2023947

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2023947001	DUPLICATE	EPA 6020	KJR	6
2023947002	WW-04	EPA 6020	KJR	6
2023947003	NORTH WELL	EPA 6020	KJR	6
2023947004	(b) (6) WELL	EPA 6020	KJR	6
2023947005	SOUTH WELL	EPA 6020	KJR	6
2023947006	WW-09	EPA 6020	KJR	6

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ANALYTICAL RESULTS

Project: Delatte Metals
Pace Project No.: 2023947

Sample: DUPLICATE		Lab ID: 2023947001	Collected: 08/11/15 14:30		Received: 08/12/15 11:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	1.5	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:02	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:02	7440-43-9	
Lead	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:02	7439-92-1	
Manganese	56.1	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:02	7439-96-5	
Nickel	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:02	7440-02-0	
Zinc	ND	ug/L	5.0	1	08/13/15 08:17	08/21/15 11:02	7440-66-6	

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ANALYTICAL RESULTS

Project: Delatte Metals
Pace Project No.: 2023947

Sample: WW-04		Lab ID: 2023947002	Collected: 08/11/15 14:00		Received: 08/12/15 11:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 10:38	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 10:38	7440-43-9	
Lead	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 10:38	7439-92-1	
Manganese	2.9	ug/L	1.0	1	08/13/15 08:17	08/21/15 10:38	7439-96-5	
Nickel	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 10:38	7440-02-0	
Zinc	ND	ug/L	5.0	1	08/13/15 08:17	08/21/15 10:38	7440-66-6	

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ANALYTICAL RESULTS

Project: Delatte Metals
Pace Project No.: 2023947

Sample: NORTH WELL		Lab ID: 2023947003	Collected: 08/11/15 15:30	Received: 08/12/15 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:06	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:06	7440-43-9	
Lead	2.7	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:06	7439-92-1	
Manganese	4.8	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:06	7439-96-5	
Nickel	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:06	7440-02-0	
Zinc	ND	ug/L	5.0	1	08/13/15 08:17	08/21/15 11:06	7440-66-6	

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ANALYTICAL RESULTS

Project: Delatte Metals
Pace Project No.: 2023947

Sample: (b) (6) WELL		Lab ID: 2023947004	Collected: 08/11/15 14:30	Received: 08/12/15 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	1.5	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:10	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:10	7440-43-9	
Lead	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:10	7439-92-1	
Manganese	21.7	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:10	7439-96-5	
Nickel	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:10	7440-02-0	
Zinc	ND	ug/L	5.0	1	08/13/15 08:17	08/21/15 11:10	7440-66-6	

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ANALYTICAL RESULTS

Project: Delatte Metals
Pace Project No.: 2023947

Sample: SOUTH WELL		Lab ID: 2023947005	Collected: 08/11/15 16:00	Received: 08/12/15 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:14	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:14	7440-43-9	
Lead	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:14	7439-92-1	
Manganese	4.1	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:14	7439-96-5	
Nickel	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:14	7440-02-0	
Zinc	6.0	ug/L	5.0	1	08/13/15 08:17	08/21/15 11:14	7440-66-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Delatte Metals
Pace Project No.: 2023947

Sample: WW-09		Lab ID: 2023947006	Collected: 08/11/15 15:00	Received: 08/12/15 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:17	7440-38-2	
Cadmium	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:17	7440-43-9	
Lead	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:17	7439-92-1	
Manganese	18.6	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:17	7439-96-5	
Nickel	ND	ug/L	1.0	1	08/13/15 08:17	08/21/15 11:17	7440-02-0	
Zinc	ND	ug/L	5.0	1	08/13/15 08:17	08/21/15 11:17	7440-66-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Delatte Metals
Pace Project No.: 2023947

QC Batch: MPRP/3025 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 2023947001, 2023947002, 2023947003, 2023947004, 2023947005, 2023947006

METHOD BLANK: 146560 Matrix: Water
Associated Lab Samples: 2023947001, 2023947002, 2023947003, 2023947004, 2023947005, 2023947006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	1.0	08/21/15 10:03	
Cadmium	ug/L	ND	1.0	08/21/15 10:03	
Lead	ug/L	ND	1.0	08/21/15 10:03	
Manganese	ug/L	ND	1.0	08/21/15 10:03	
Nickel	ug/L	ND	1.0	08/21/15 10:03	
Zinc	ug/L	ND	5.0	08/21/15 10:03	

LABORATORY CONTROL SAMPLE: 146561

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	20	18.9	94	83-115	
Cadmium	ug/L	20	19.7	98	85-115	
Lead	ug/L	20	19.1	95	84-115	
Manganese	ug/L	20	19.6	98	85-115	
Nickel	ug/L	20	19.8	99	80-118	
Zinc	ug/L	20	19.4	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 146562 146563

Parameter	Units	2023947002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	20	20	18.6	18.7	93	93	80-120	1	20	
Cadmium	ug/L	ND	20	20	19.0	19.4	95	97	80-120	2	20	
Lead	ug/L	ND	20	20	19.4	19.7	97	98	80-120	2	20	
Manganese	ug/L	2.9	20	20	22.0	23.1	95	101	80-120	5	20	
Nickel	ug/L	ND	20	20	18.5	18.8	93	94	80-120	2	20	
Zinc	ug/L	ND	20	20	18.6	18.5	93	93	80-120	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Delatte Metals
Pace Project No.: 2023947

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The Nelac Institute

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Delatte Metals
Pace Project No.: 2023947

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2023947001	DUPLICATE	EPA 3010	MPRP/3025	EPA 6020	ICPM/1537
2023947002	WW-04	EPA 3010	MPRP/3025	EPA 6020	ICPM/1537
2023947003	NORTH WELL	EPA 3010	MPRP/3025	EPA 6020	ICPM/1537
2023947004	(b) (6) WELL	EPA 3010	MPRP/3025	EPA 6020	ICPM/1537
2023947005	SOUTH WELL	EPA 3010	MPRP/3025	EPA 6020	ICPM/1537
2023947006	WW-09	EPA 3010	MPRP/3025	EPA 6020	ICPM/1537

REPORT OF LABORATORY ANALYSIS

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Face Analytical
www.faceanalytical.com



The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information:

Requested Due Date:

Required Project Information:

Project #:

Invoice Information:

Pace Profile #: 6306 line 1

Page : 1 Of 1

Page 14 of 15

WO#: 2023947

PM: WRS

Due Date: 08/26/15

CLIENT: 20-sems Met SEMS Metairie



Sample Condition Upon Re

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Project #: 20

Courier: ☒ Pace Courier ☐ Hired Courier ☐ Fed X ☐ UPS ☐ DHL ☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals Intact: ☐ Yes ☒ No

Thermometer
Used:

- ☐ Therm Fisher IR 5
☐ Therm Fisher IR 6
☒ Therm Fisher IR 7

Type of Ice: ☒ Wet ☐ Blue ☐ None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining
contents: 8-12-15

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

If No, was preservative added? ☐ Yes ☐ No
If added record lot no.: HNO3 _____ H2SO4 _____

Client Notification/ Resolution:

Person Contacted: _____

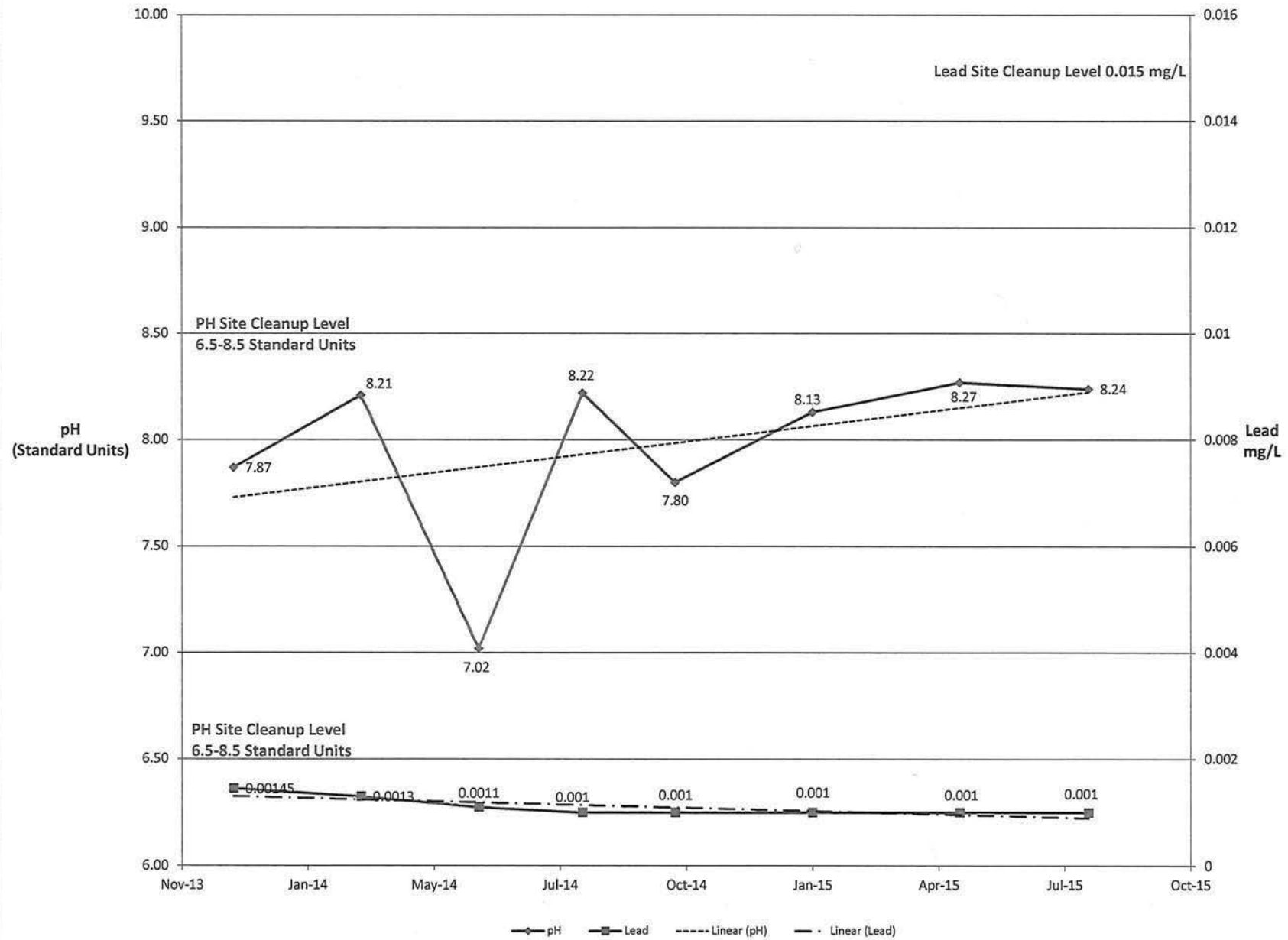
Date/Time: _____

Comments/ Resolution: _____

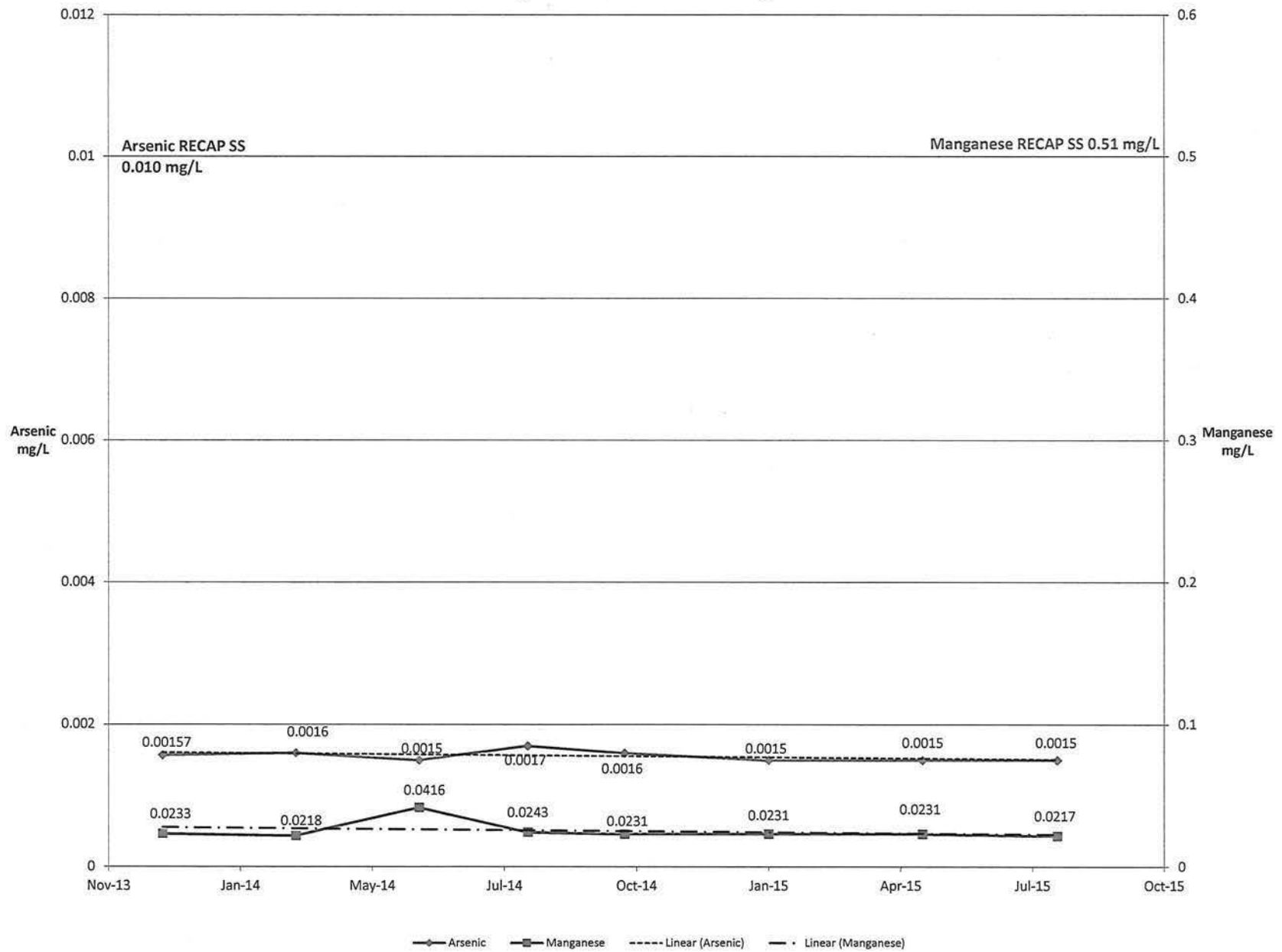
ATTACHMENT C
HISTORICAL CONCENTRATION
VS.
TIME GRAPHS

WATER WELLS
(PAST EIGHT QUARTERS)

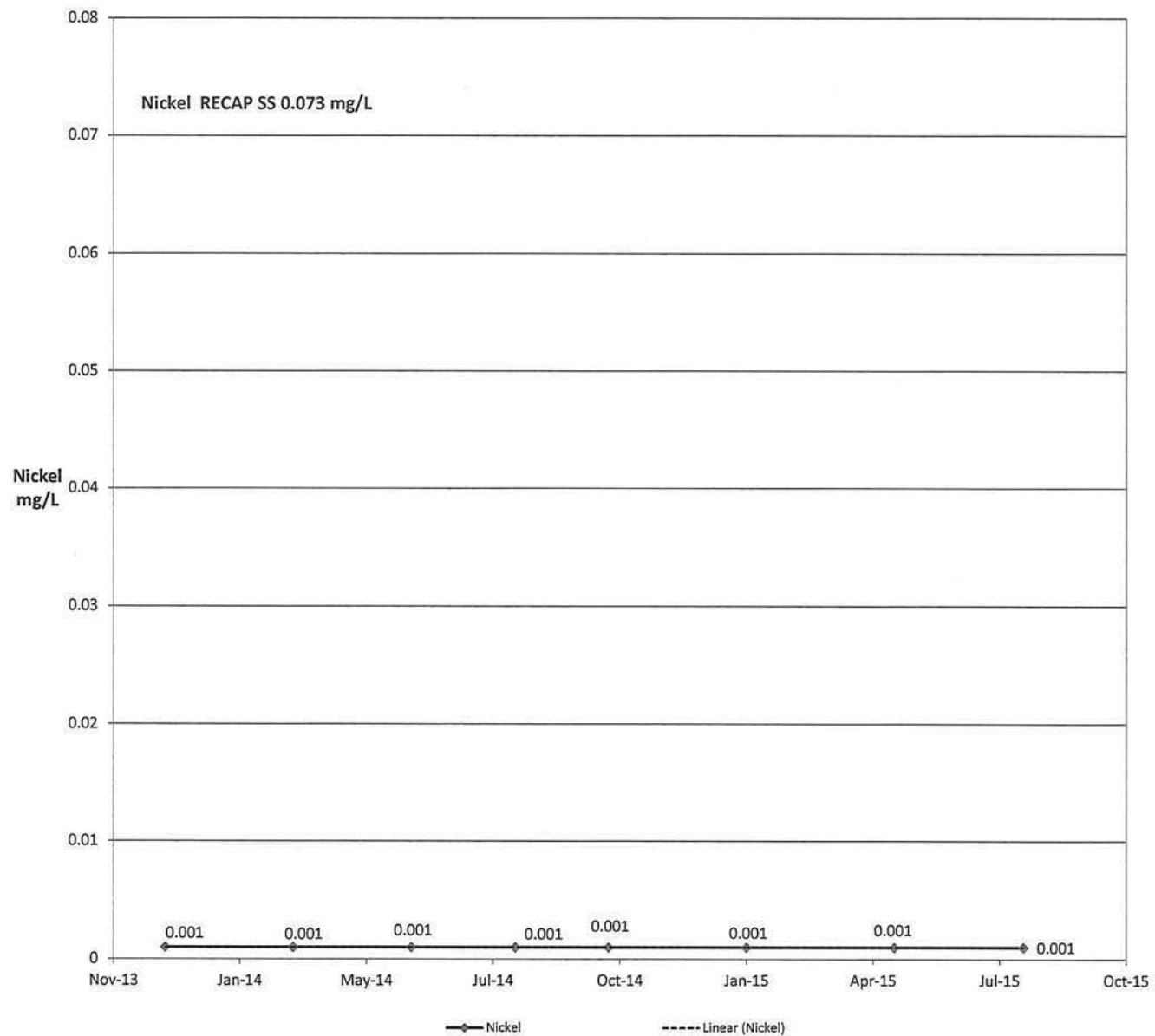
(b) (6) Well pH and Lead



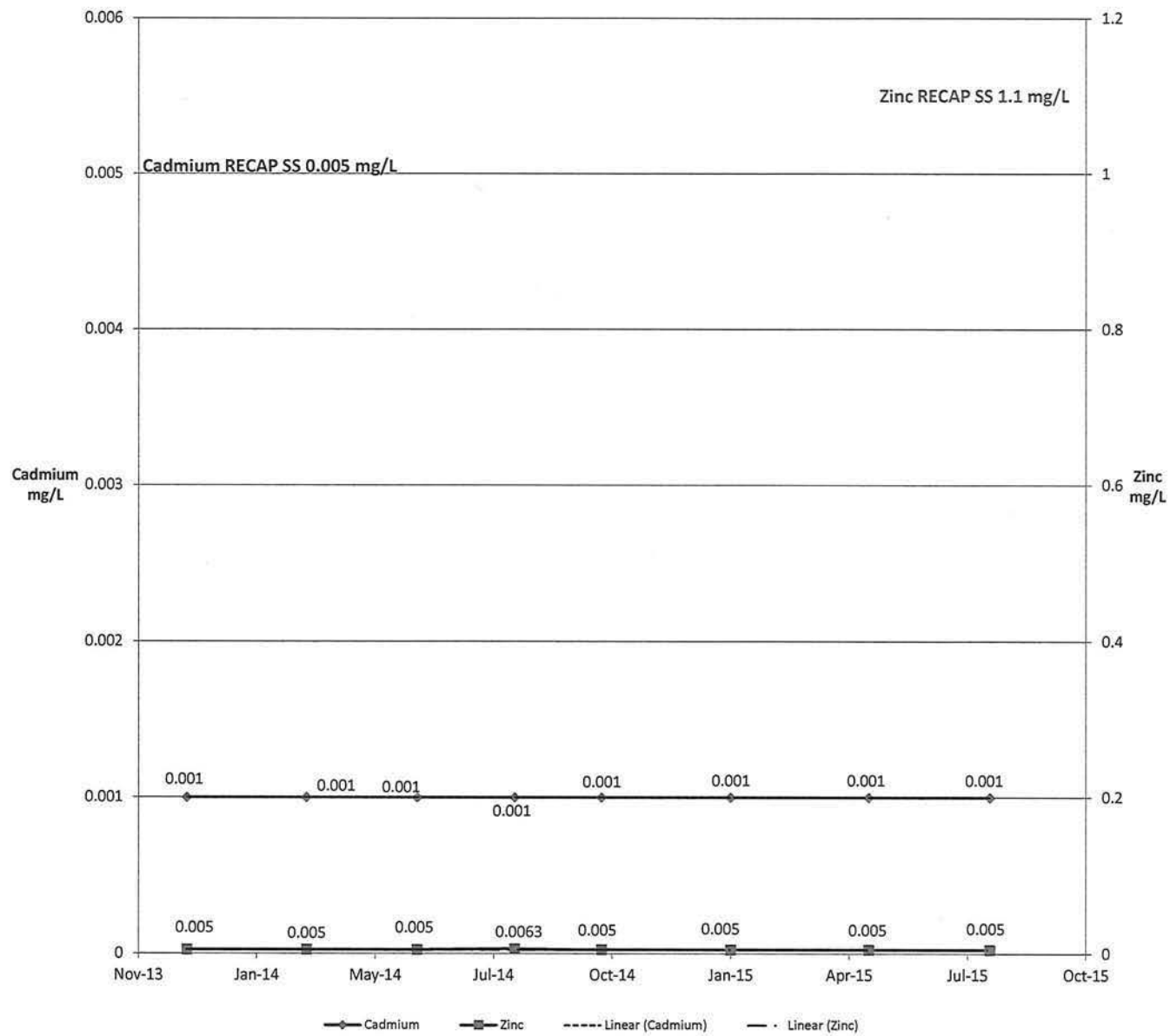
(b) (6) Well Arsenic and Manganese



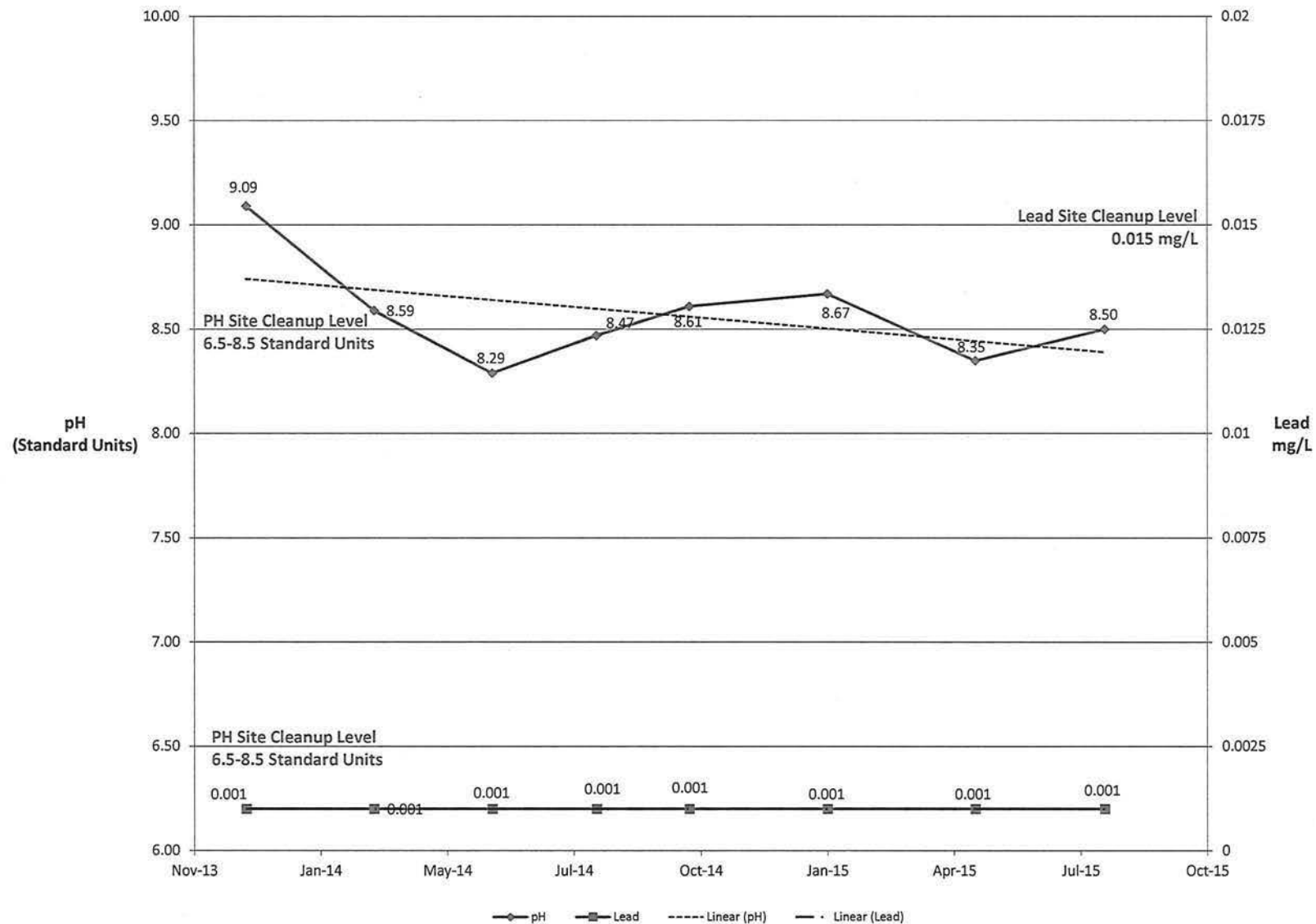
(b) (6) Well Nickel



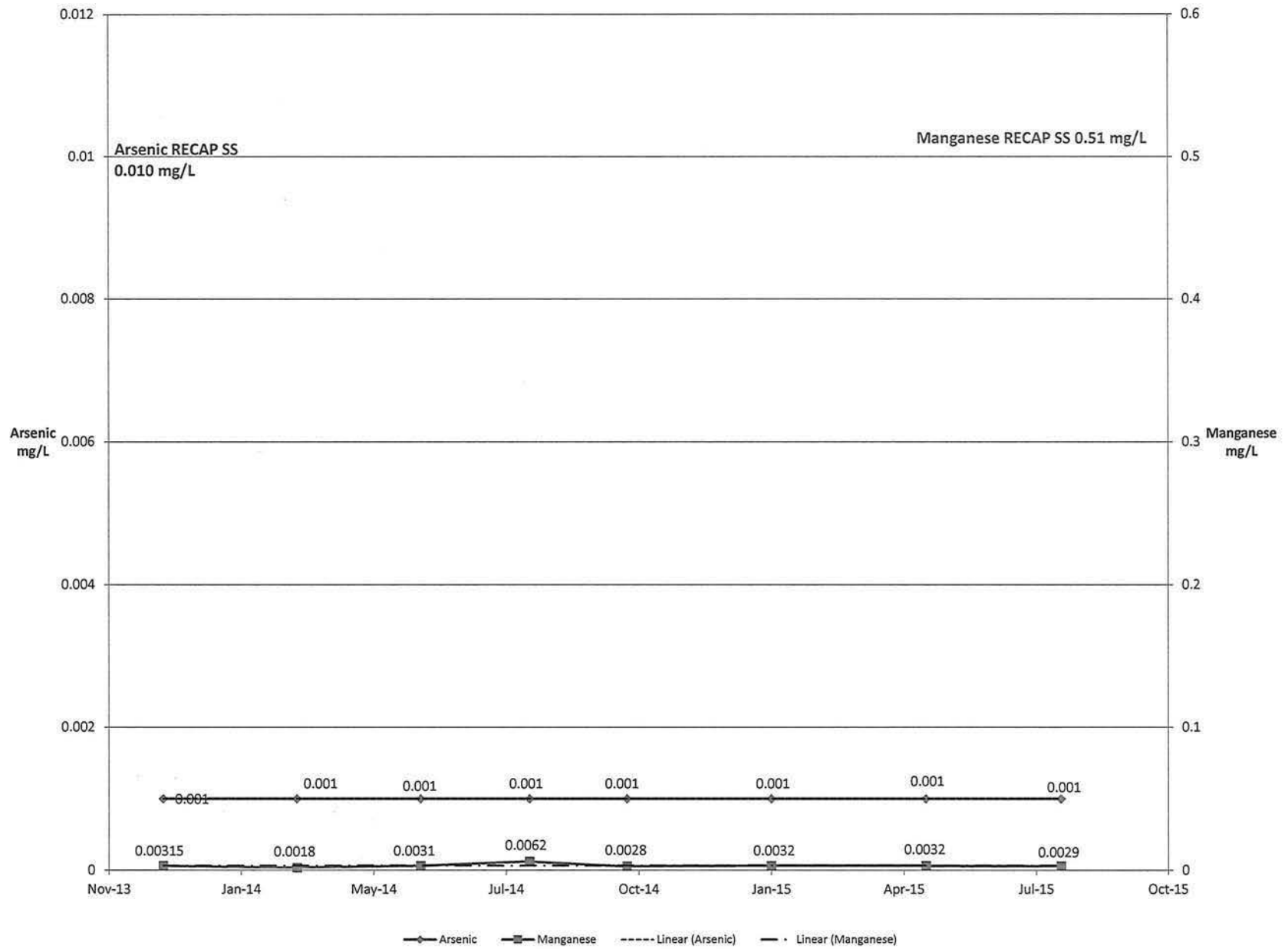
(b) (6) Well Cadmium and Zinc



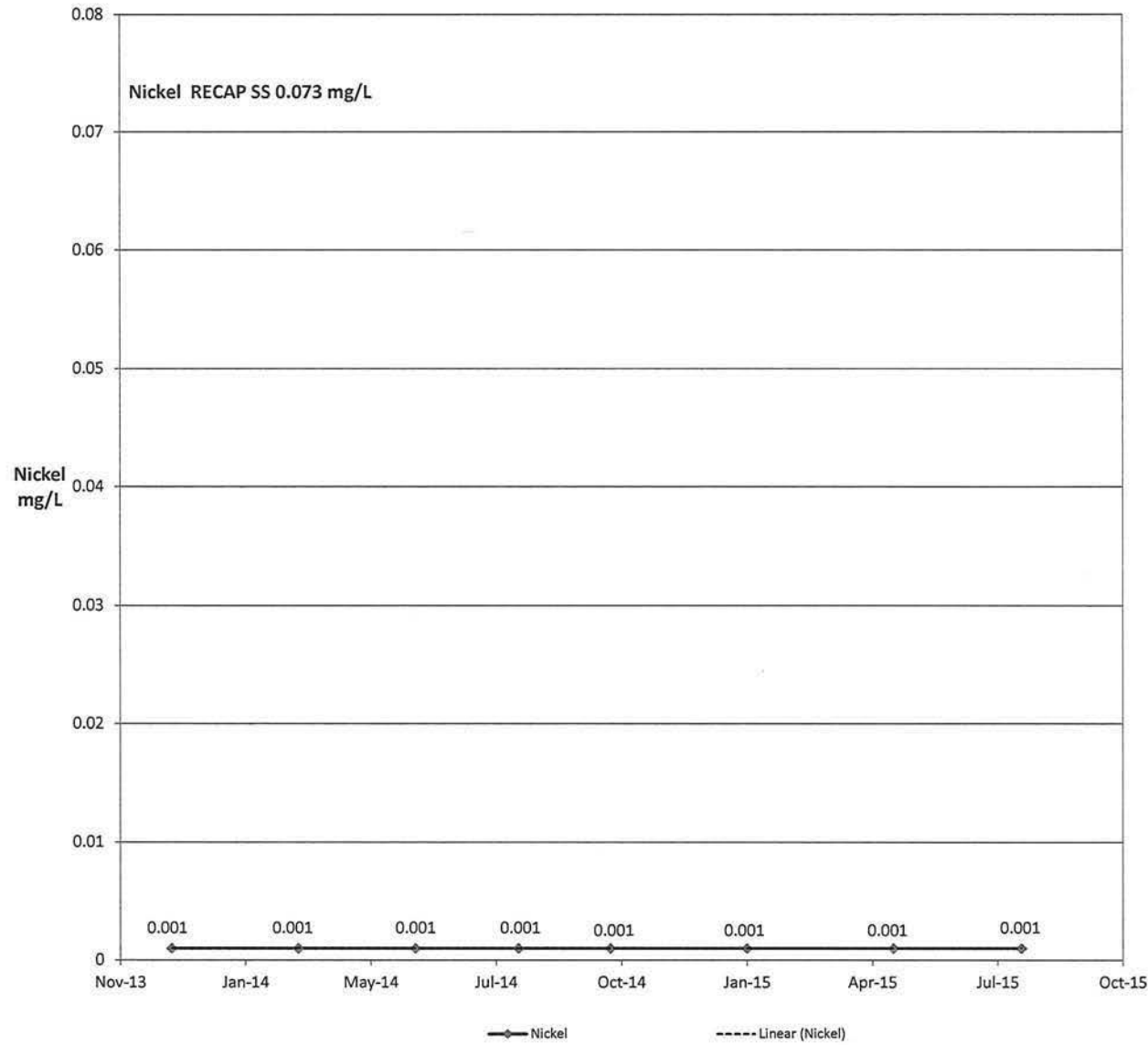
WW-04 pH and Lead



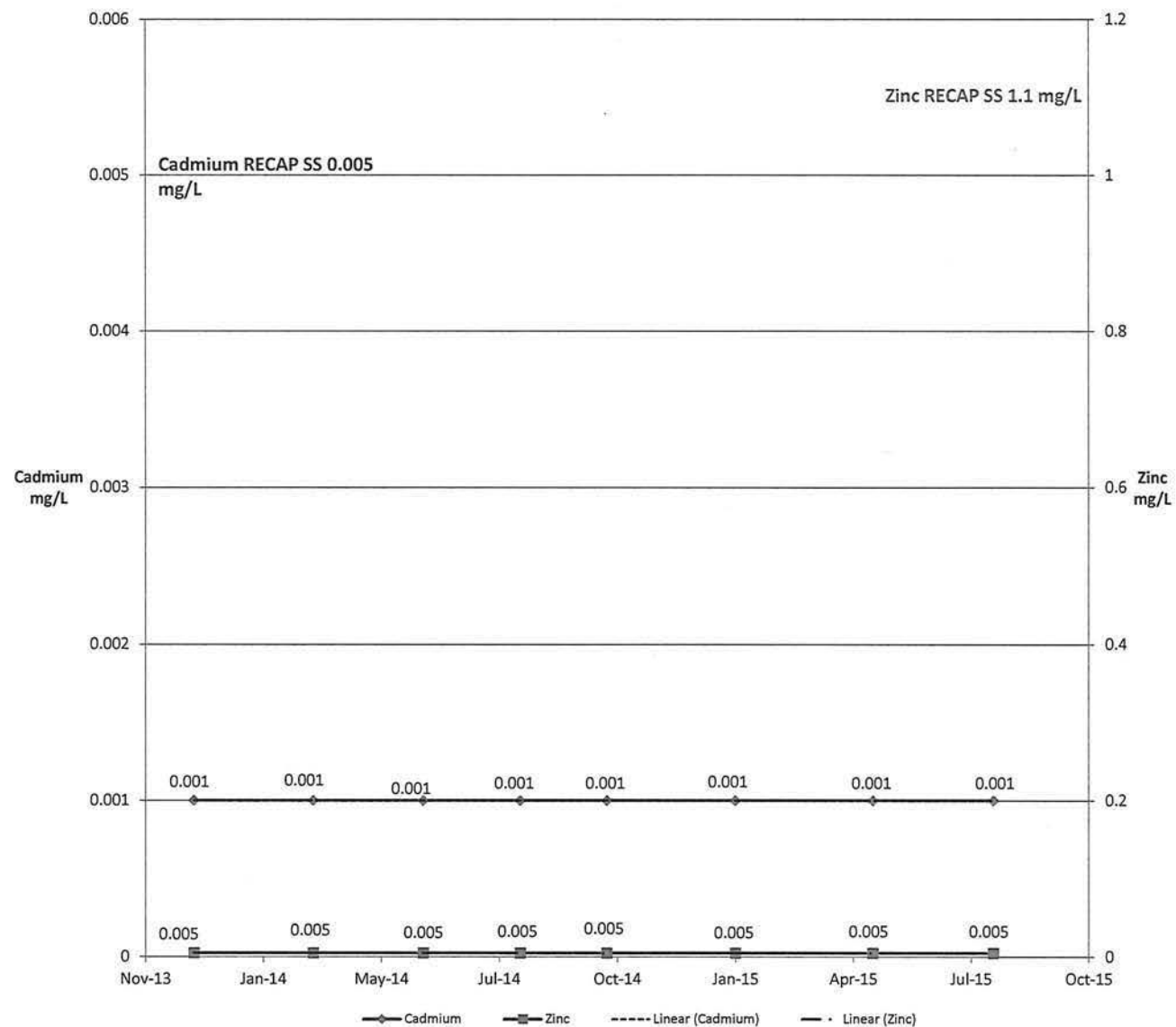
WW-04 Arsenic and Manganese



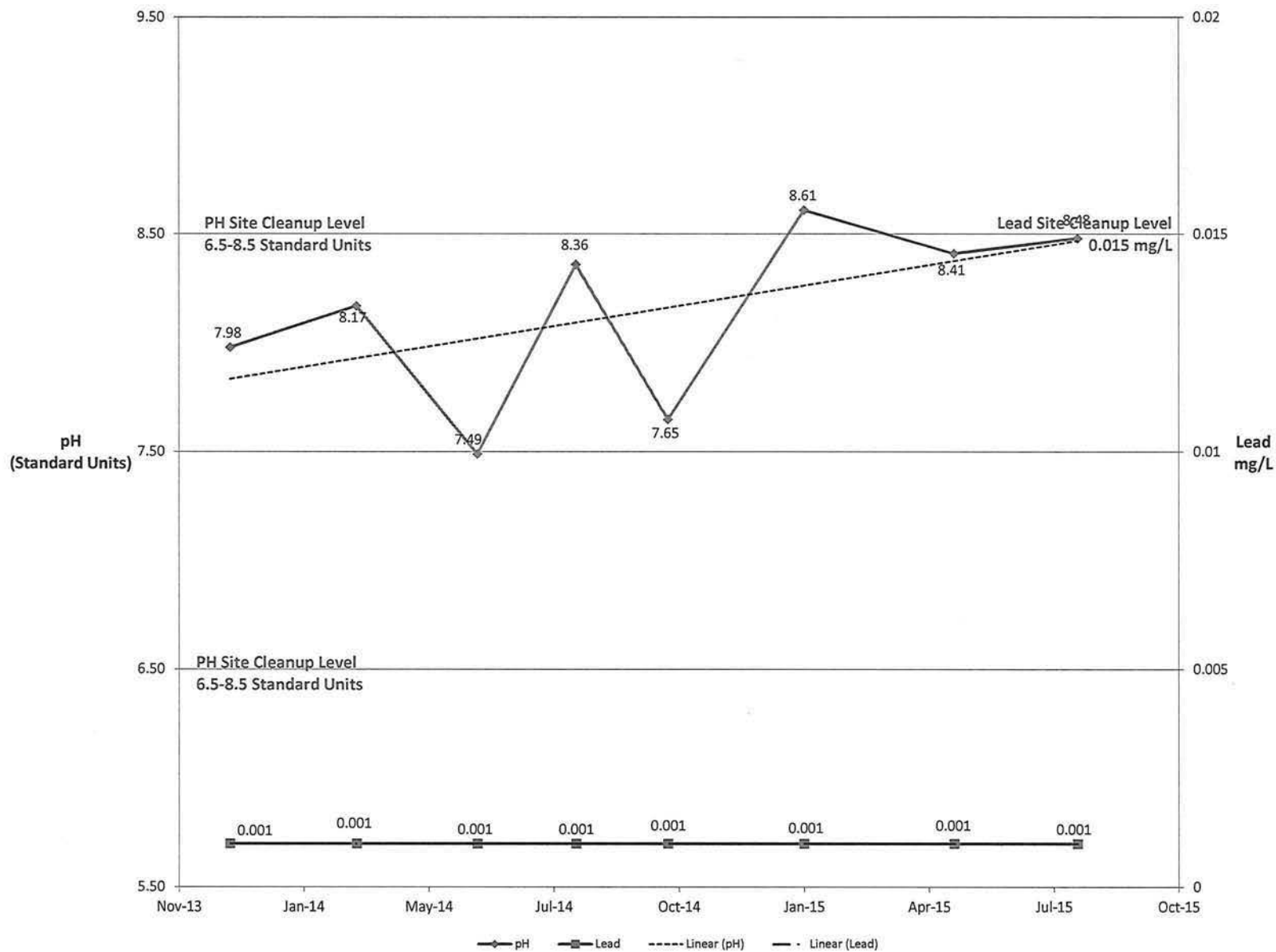
WW-04 Nickel



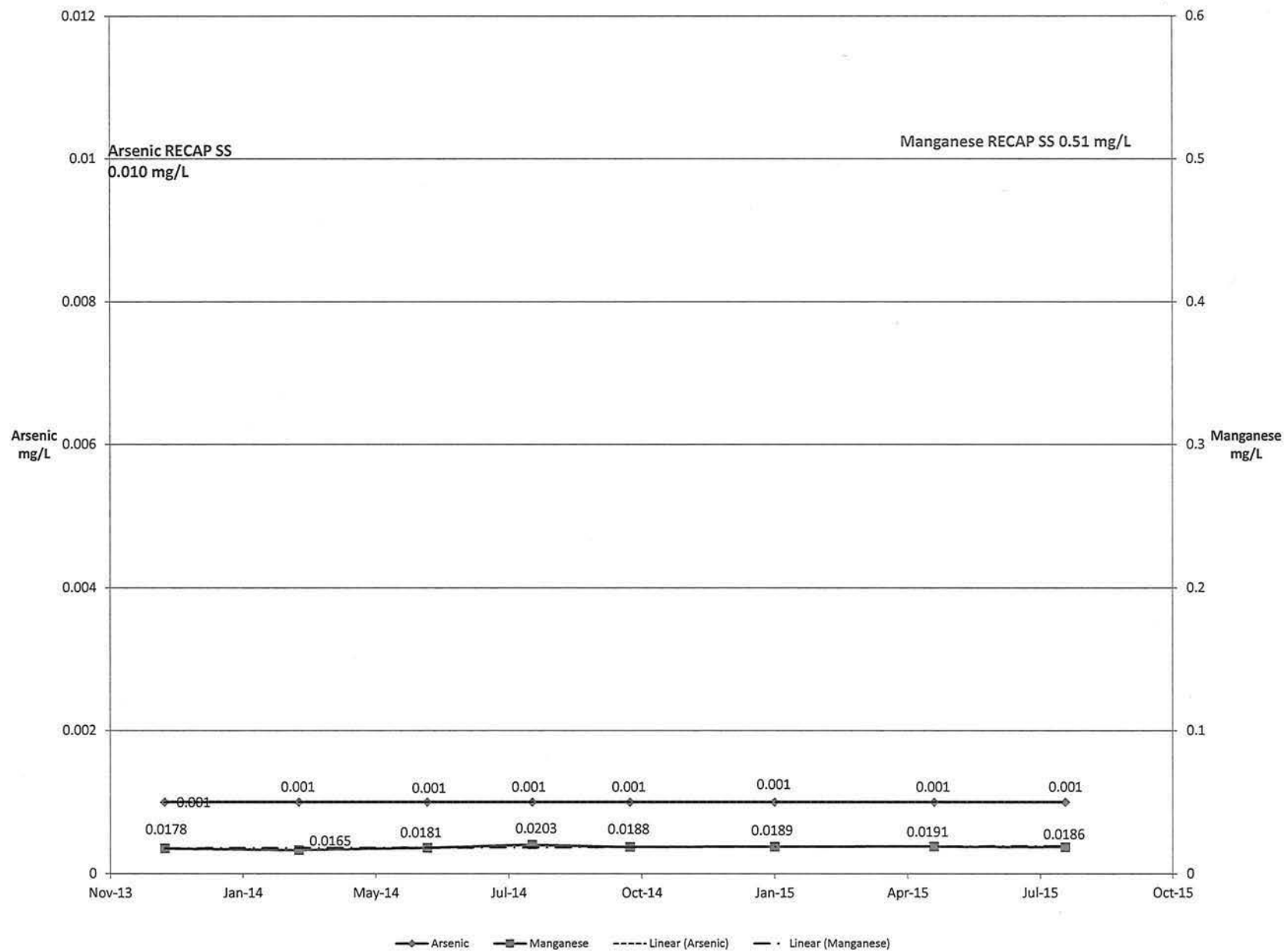
WW-04 Cadmium and Zinc



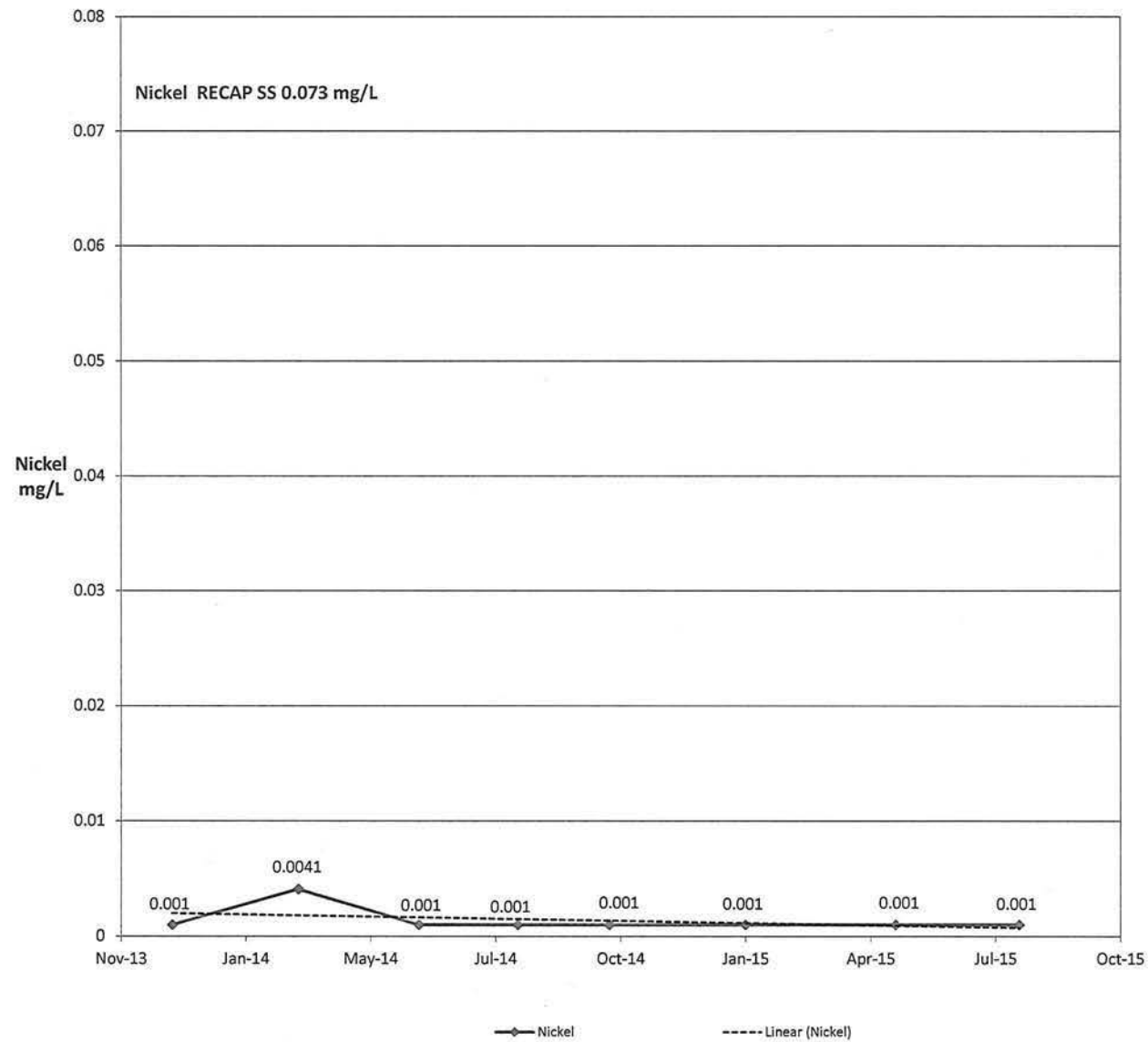
WW-09 pH and Lead



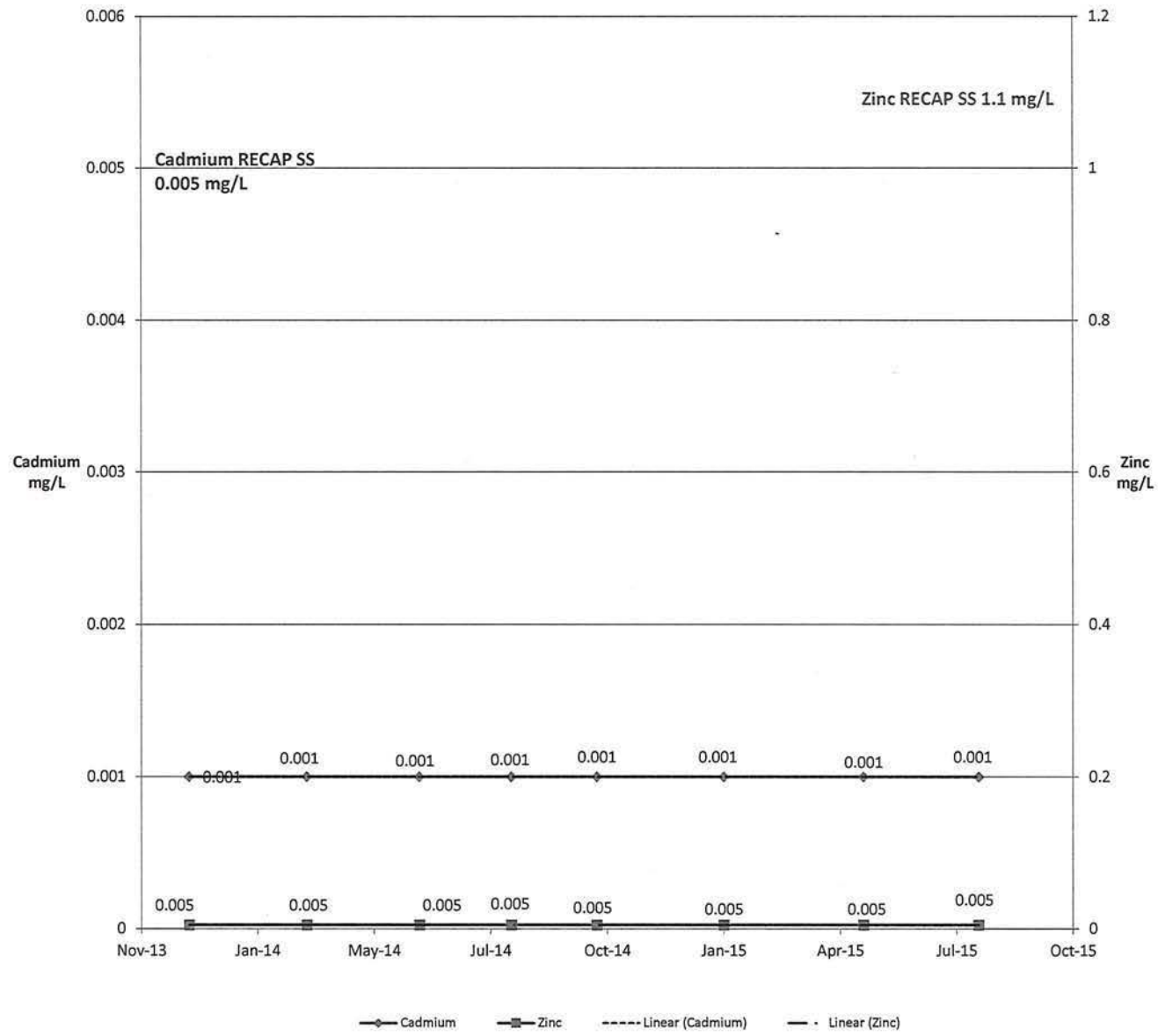
WW-09 Arsenic and Manganese



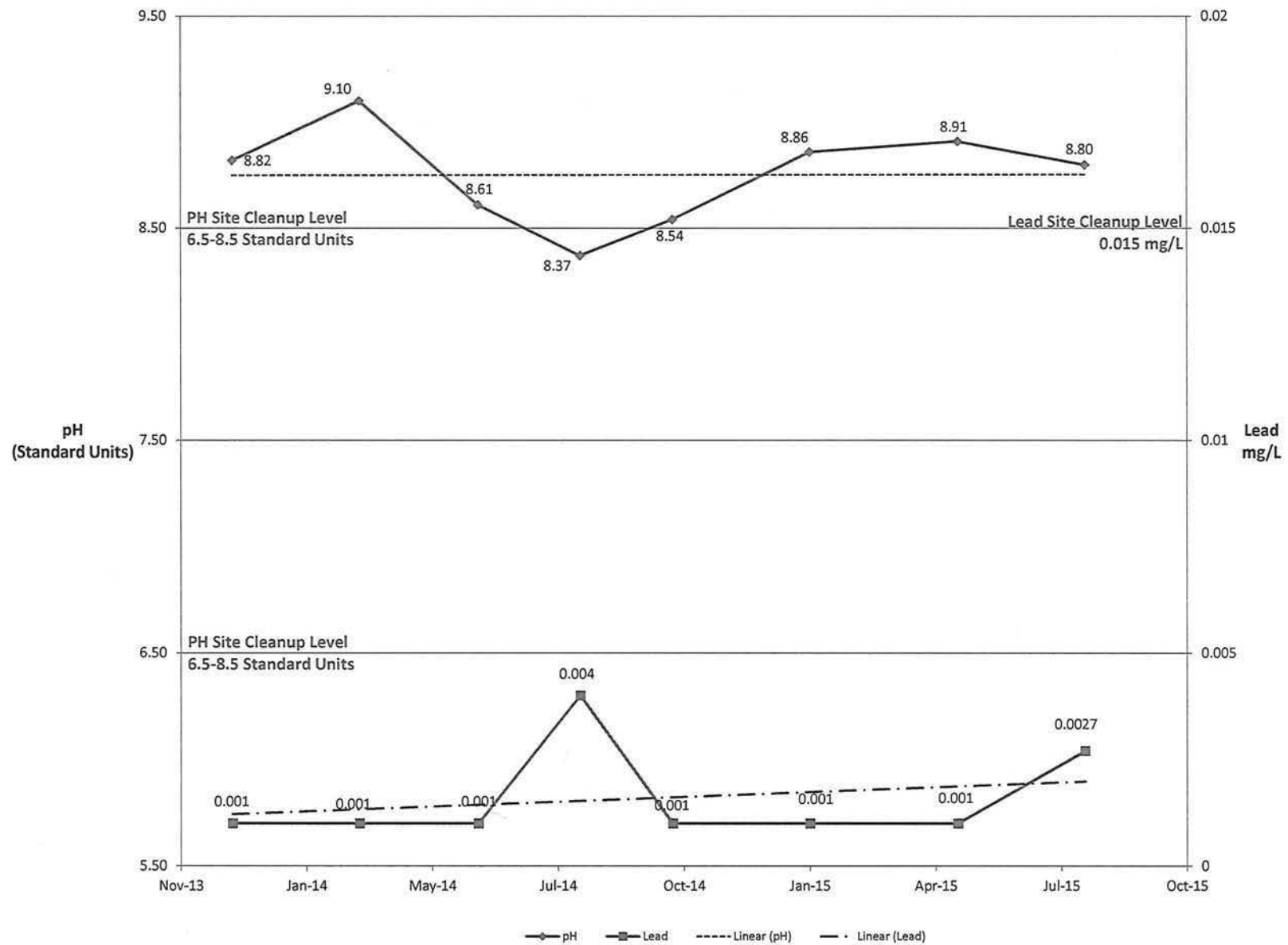
WW-09 Nickel



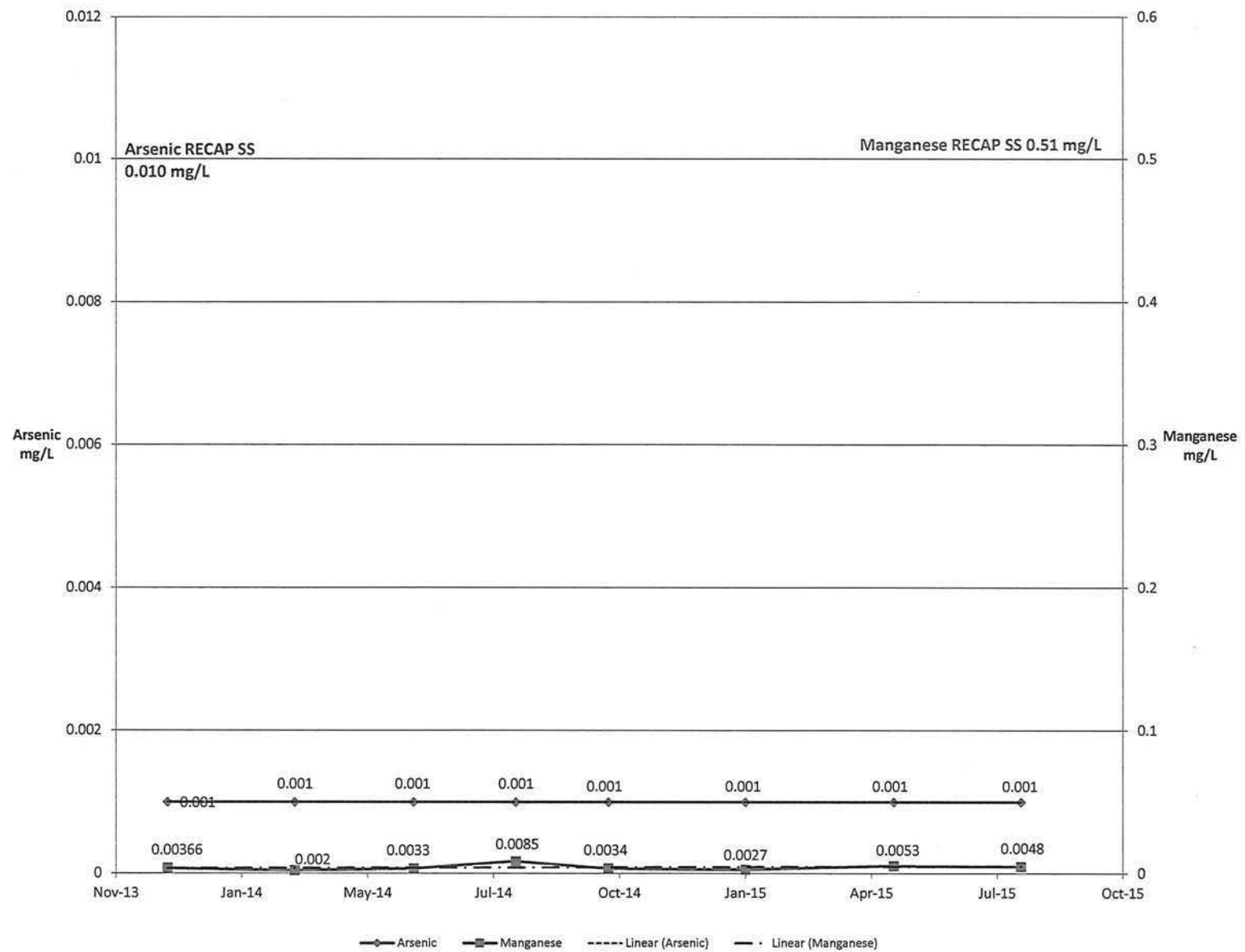
WW-09 Cadmium and Zinc



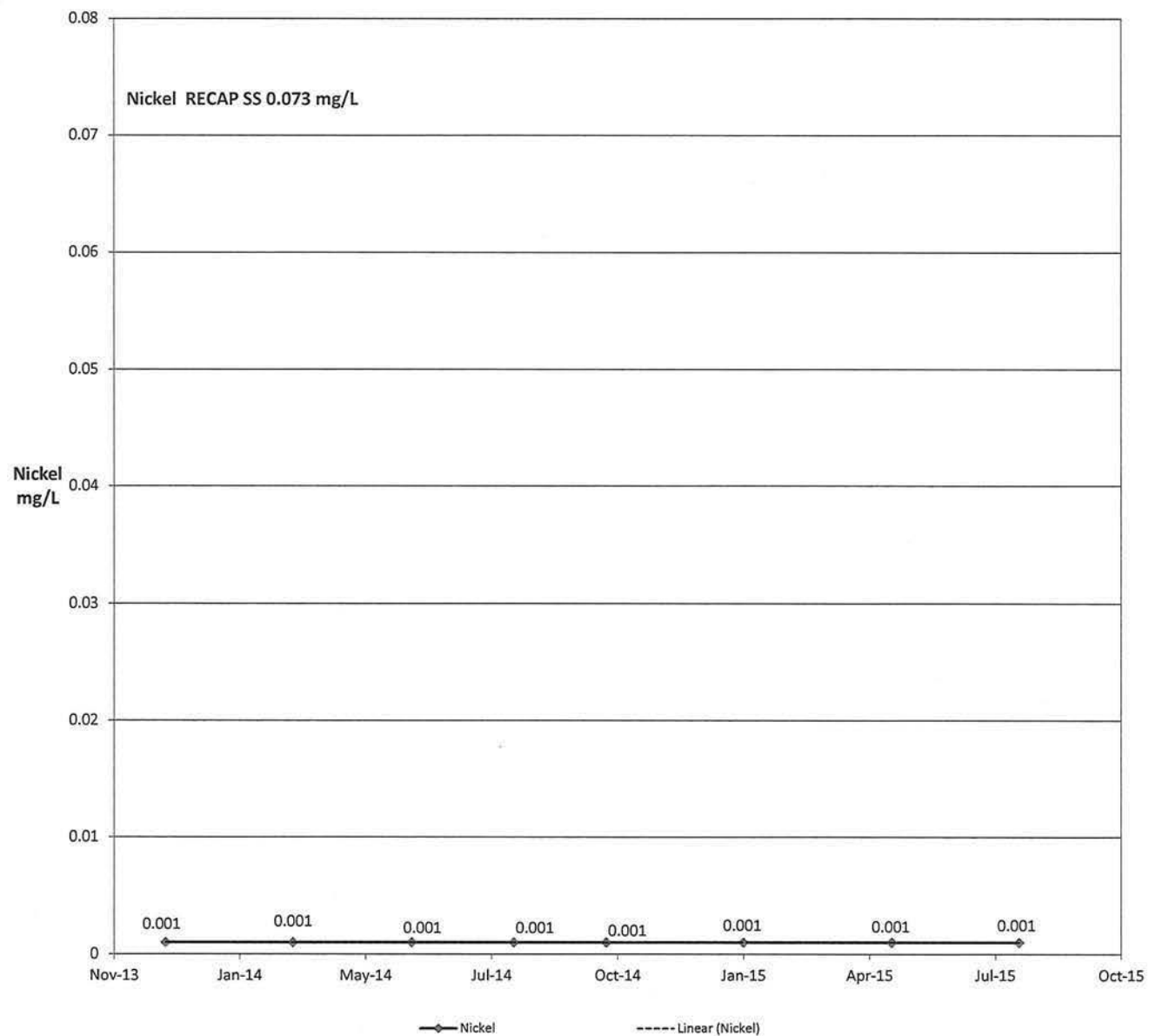
North Well pH and Lead



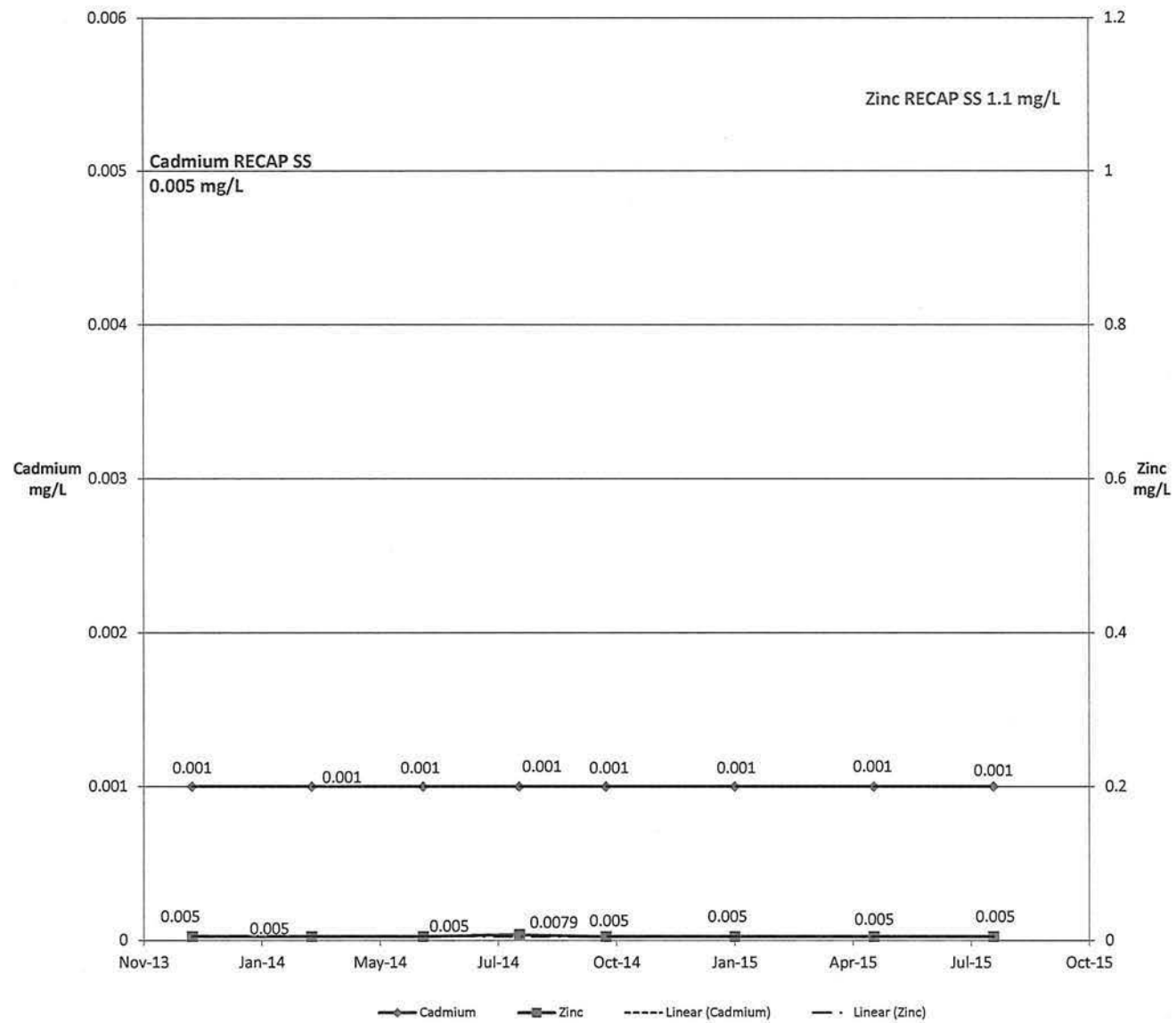
North Well Arsenic and Manganese



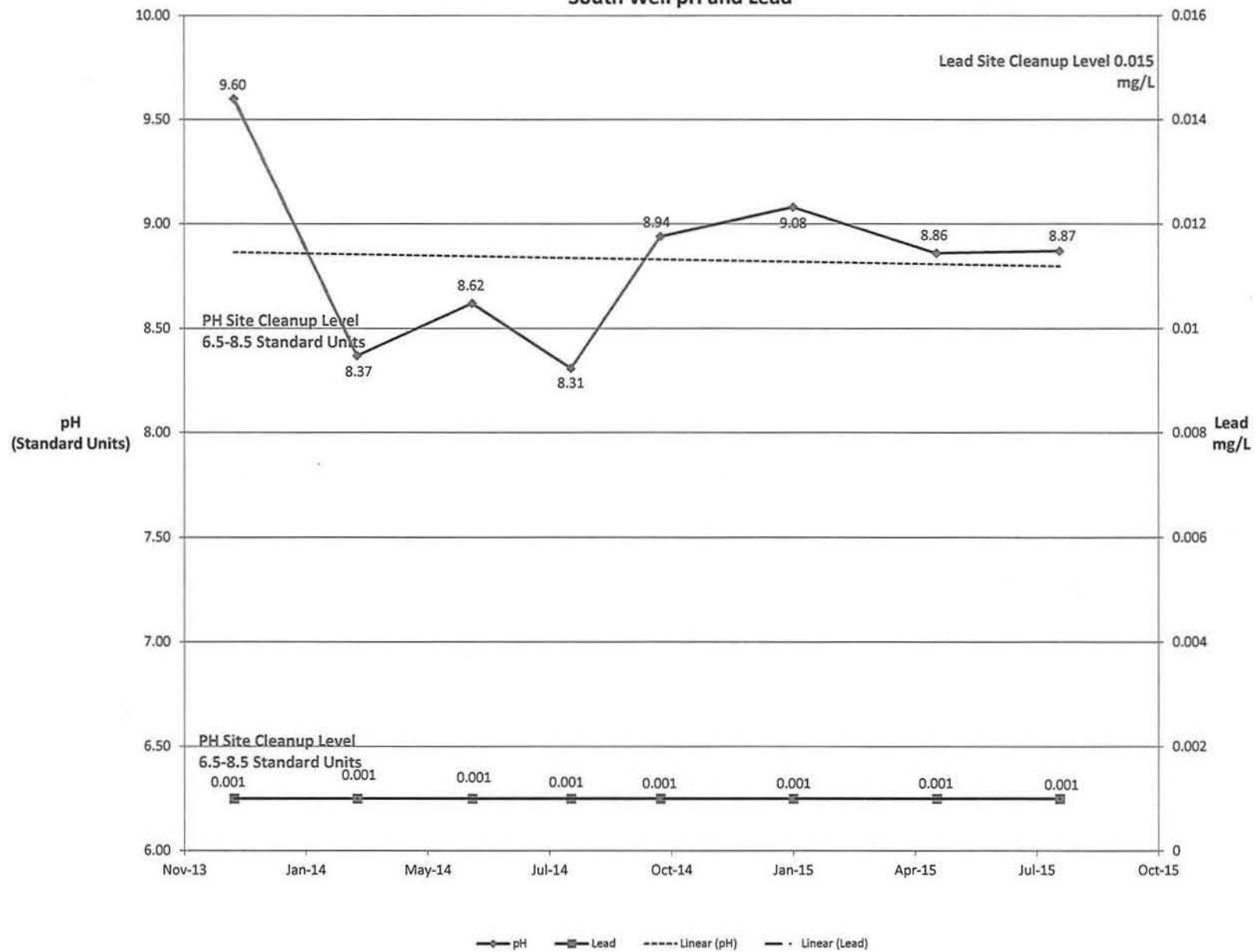
North Well Nickel



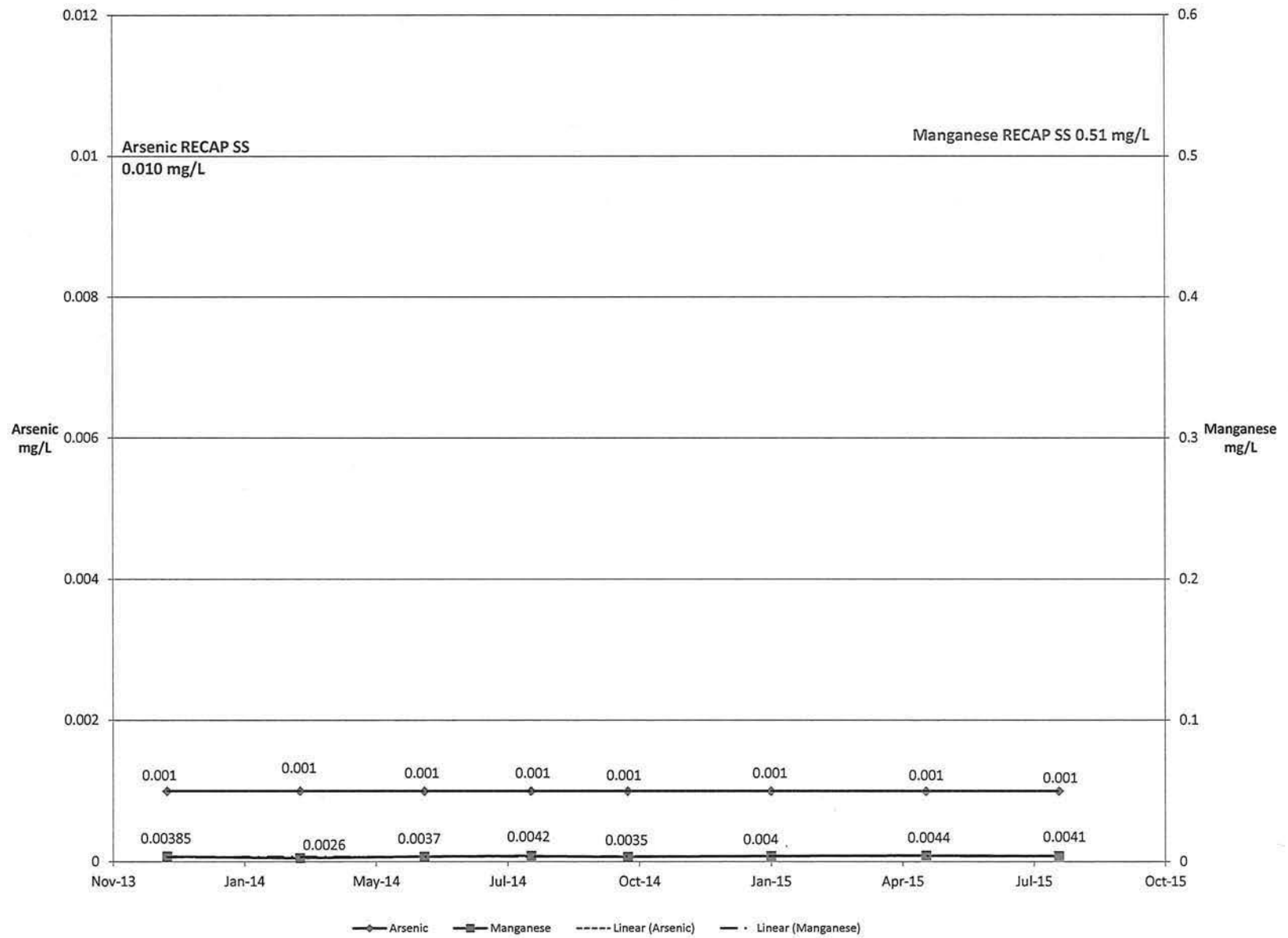
North Well Cadmium and Zinc



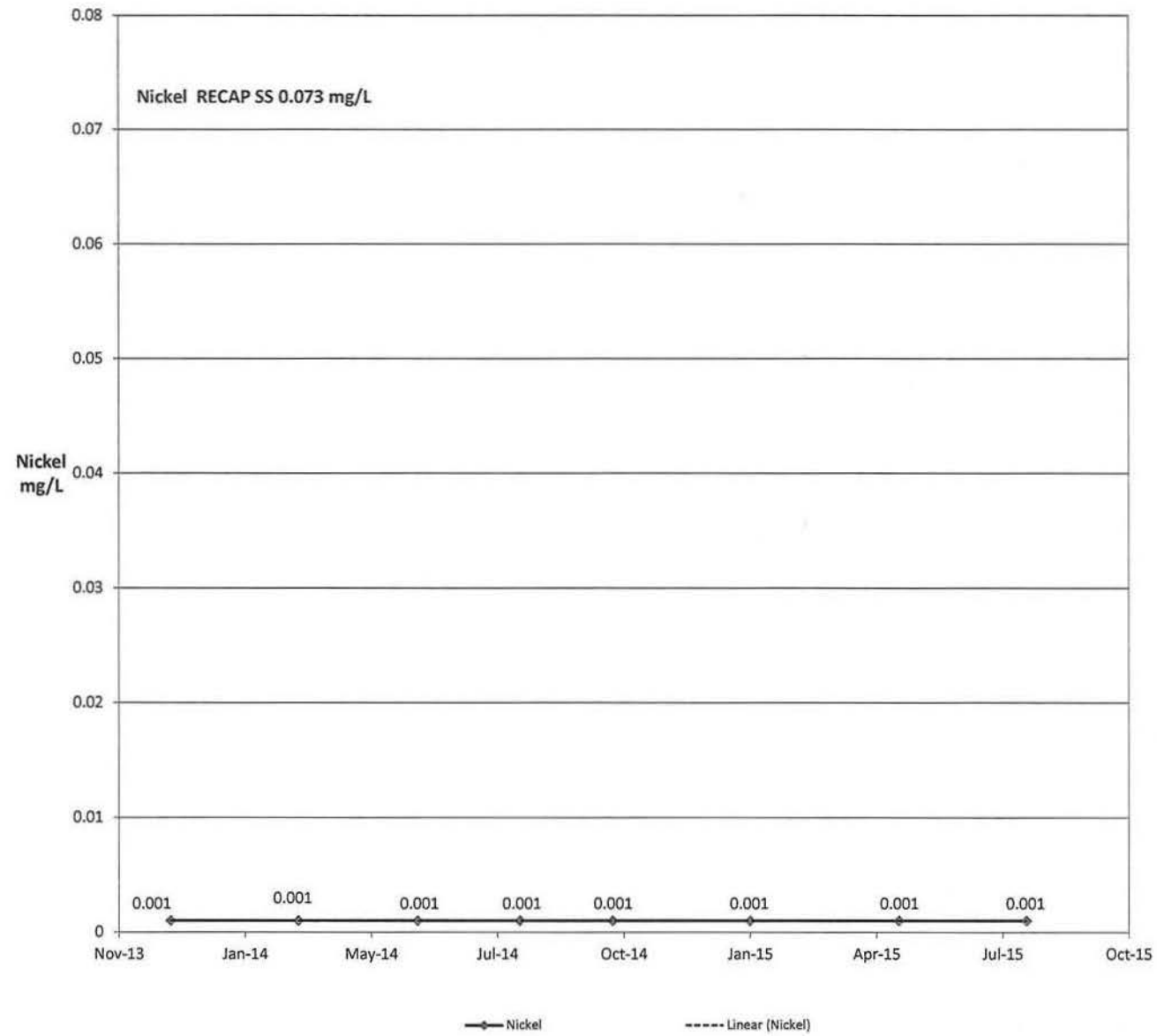
South Well pH and Lead



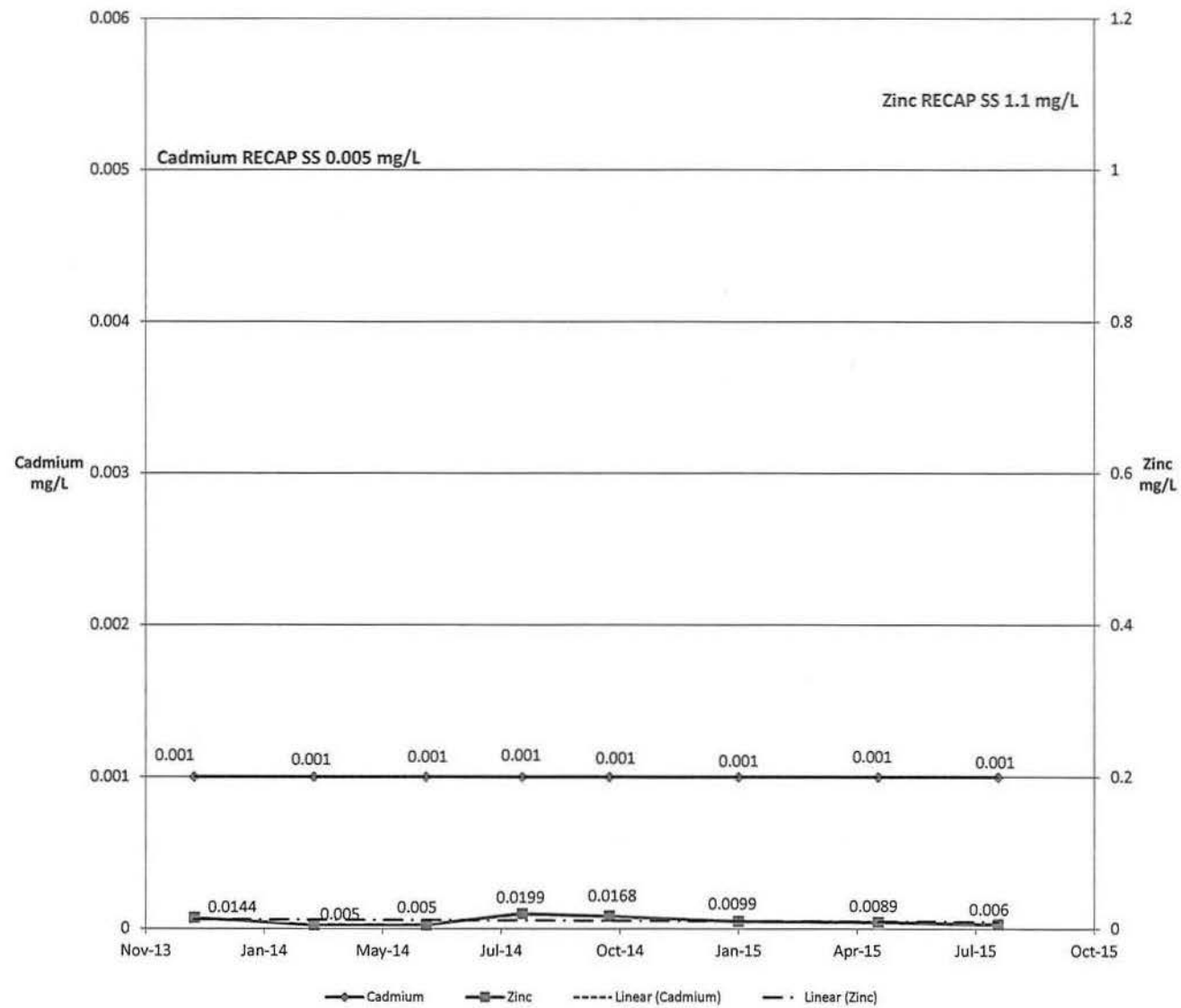
South Well Arsenic and Manganese



South Well Nickel



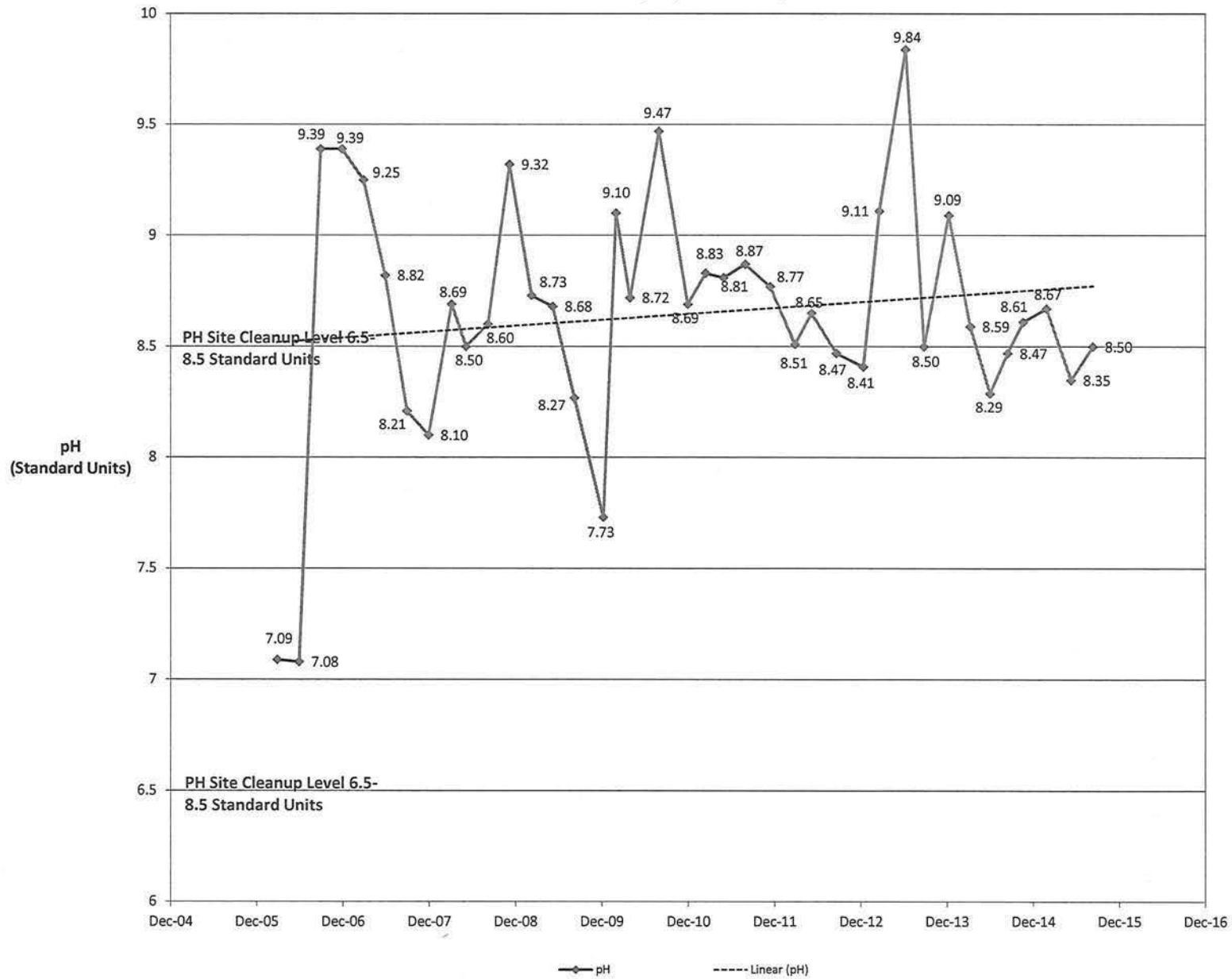
South Well Cadmium and Zinc



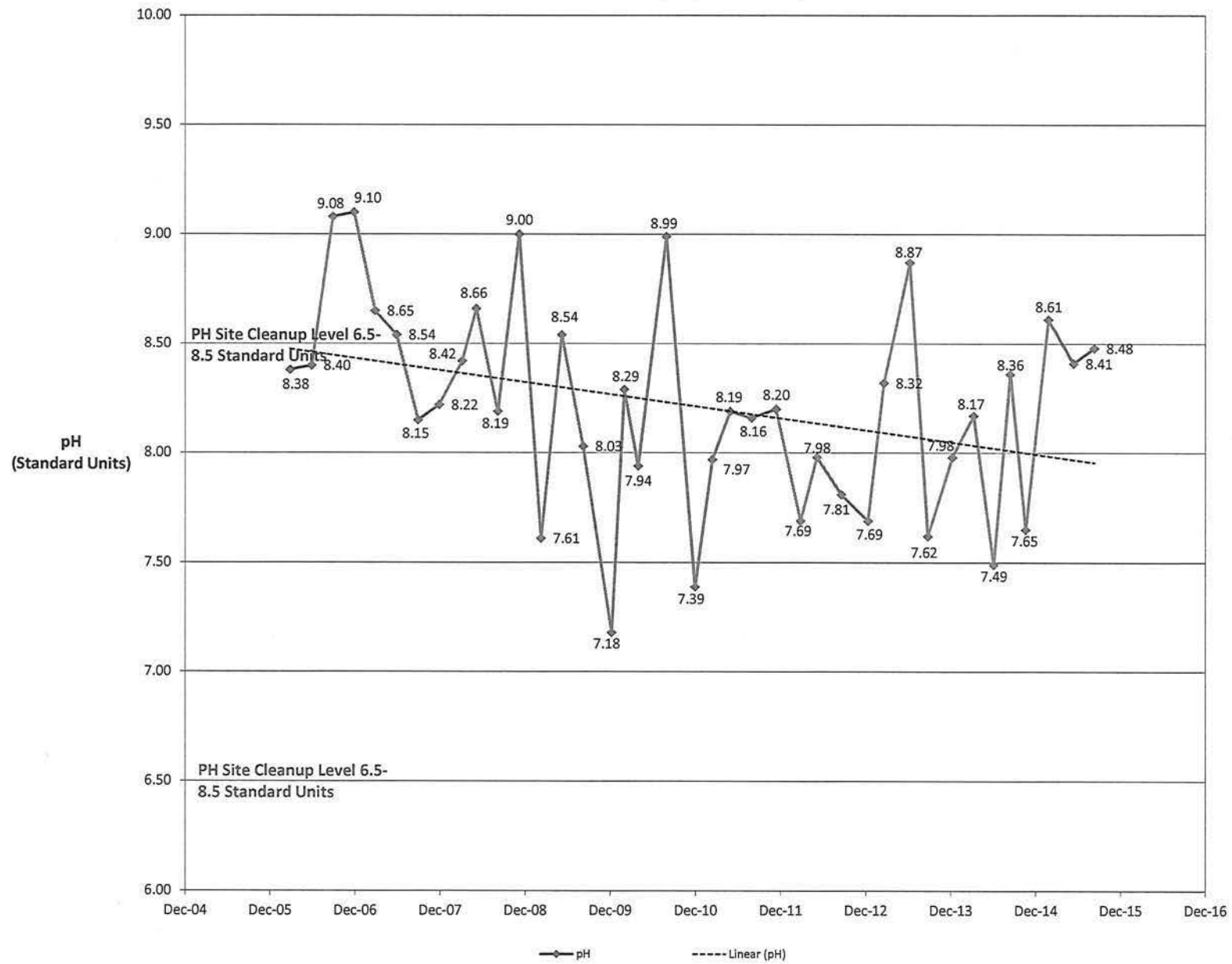
WATER WELLS

(SINCE 2006)

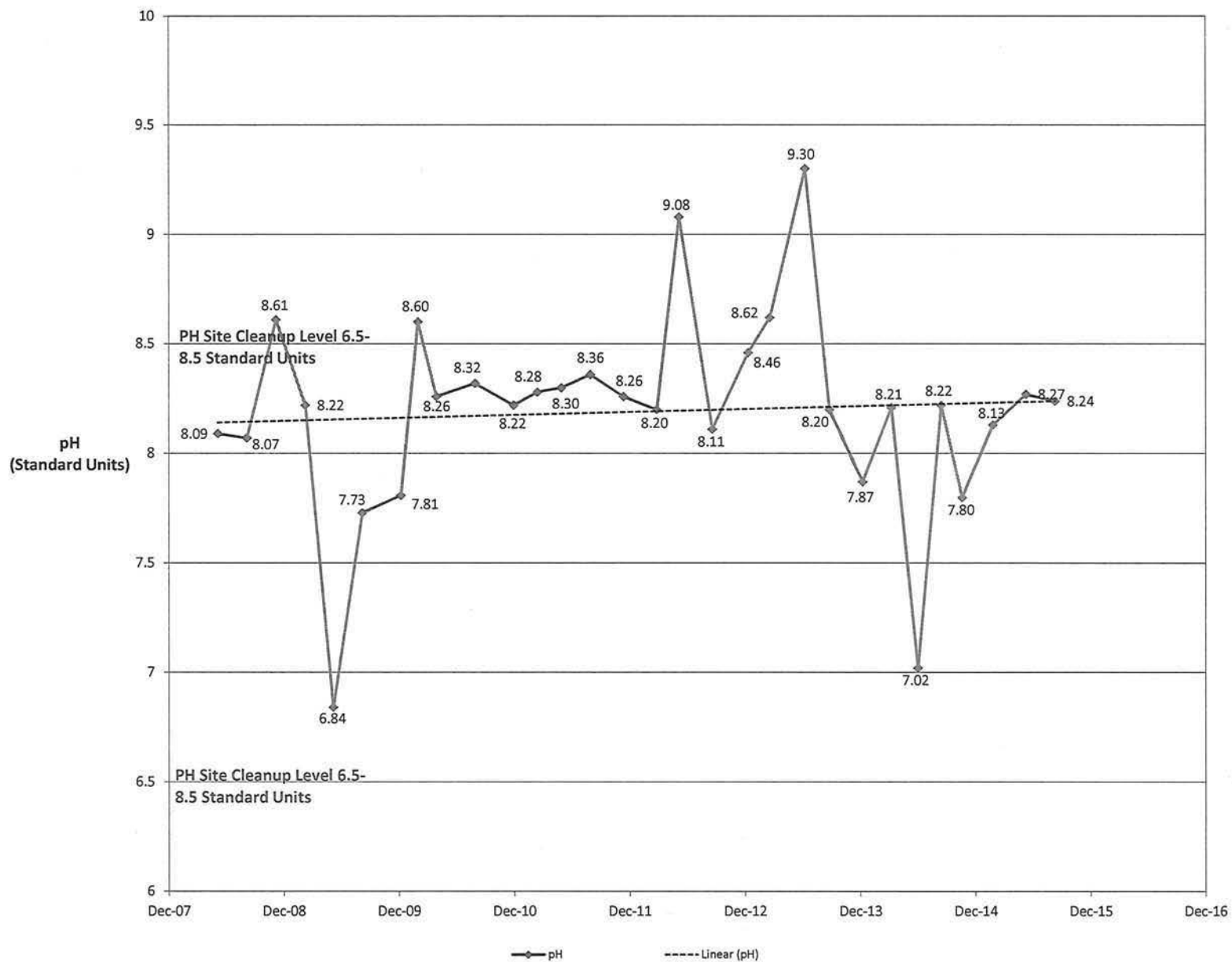
WW-04 pH (Since 2006)



WW-09 pH (Since 2006)



(b) (6) Well pH (Since 2008)



ATTACHMENT D
DATA VALIDATION PACKAGE

Data Validation Report

Project: Delatte Metals

Client: SEMS, Inc.

SDG: 2023947

Date: September 16, 2015



Environmental Data Professional, LLC
1432 Watkins Street • Lake Charles, LA 70601 • phone: 337-540-0036 • fax: 337-478-6061



Disclaimer:

The validation performed and reported herein is based on specifications and procedures presented to eDATapro with the associated data package. Any qualifications or review not specified with package requirements was based on USEPA National Functional Guidelines for Inorganic and Organic Data Review.

Information contained in this report is based solely on the hardcopy and/or electronic deliverables that were submitted to eDATapro. eDATapro reserves the rights to modify or change the validation report if new information is presented or if this report is determined to be inaccurate or incomplete.

Cover Letter

Validation Report Date: September 16, 2015

Sample Delivery Group: 2023947

Project Name: Delatte Metals

Data Deliverables Included:

Validation Report:

- ☒ Introduction
- ☒ Sample Identification Cross- Reference Table
- ☒ Data Validation Components
- ☒ Data Validation Findings Summary
- ☒ Table 1-1, Summary of Qualified Data
- ☒ Table 1-2, Data Qualifier Reference Table
- ☒ Appendix I, Form I Data (qualified)
- ☒ Appendix II, Chain of Custody

Approval Signature:  Date: September 16, 2015

INTRODUCTION:

SDG: 2023947

Project Name: Delatte Metals

Laboratory: Pace Analytical

Laboratory Package No.: 2023947

Matrix: Water

Environmental Data Professional, LLC (eDATApro) received one electronic pdf data package and one electronic data deliverable for this project. Data validation was performed according to guidance from *USEPA National Functional Guidelines for Inorganic Data Review*, the project-specific Quality Assurance Project Plan and the analytical method.

The following samples were reviewed:

Sample ID	Lab ID	Collection Date	Analyses
SOUTH WELL	2023947005	08/11/2015 04:00 PM	[1]

Analyses Performed Codes:

[1] ICP/MS Metals (EPA 6020); As, Cd, Pb, Mn, Ni, Zn

DATA VALIDATION COMPONENTS

The data presented in this validation report was reviewed using a systematic process for evaluating performance and compliance of a set of data when compared to a set of standards to ascertain its completeness, correctness, and consistency using the methods and/or project defined criteria. The following components, as applicable to each analytical method, were reviewed in conducting the data validation:

- Data Completeness and Deliverables
- Sample Receipt (Chain of Custody Record)
 - o Sample ID
 - o Collection Date/Time
 - o Matrix
 - o Analysis Requests
- Chemical/Temperature Preservation
- Holding Times
- Analytical/Method Performance
 - o Instrument Performance Checks
 - o Instrument Calibrations
 - § Stability of Analyte Response (Average Response Factor)
 - § Linearity of Analytical Response (Correlation Coefficient)
 - § Initial Calibration (multi-point)
 - § Calibration Verification
 - o Method Quality Control
 - § Instrument/Method Blank
 - § Laboratory Control Sample
 - § Laboratory Duplicate/Replicate
 - § Surrogates
 - § Internal Standards
 - § Interference Check Sample
 - § ICP Serial Dilution
 - o Preparation Batch Quality Control
 - § Preparation Blank
 - § Laboratory Control Sample
 - § Matrix Spikes
- Field Quality Controls
 - o Field Duplicate
 - o Field/Equipment Rinsate/Trip Blanks
- Compound Identification and Quantitation

Unless specifically stated otherwise in the method summary sections of this report, all components evaluated and data presented by the laboratory met the applicable acceptance criteria and are considered fully usable.



DATA VALIDATION FINDINGS SUMMARY

I. General Package:

A laboratory data package compliant for Level IV data validation was received on September 11, 2015. No resubmissions were necessary.

Several field samples were listed on the chain of custody (COC) and presented in the laboratory data package; however, per client request, data validation was performed only for the SOUTH WELL sample.

II. Method 6020 – ICP/MS Metals:

Arsenic was present at estimate concentrations in the initial and continuing calibration blanks bracketing the analysis of the SOUTH WELL sample. Arsenic was not detected in this field sample. No data qualifications were necessary.

All other quality assurance and quality control (QA/QC) components presented by the laboratory satisfied method and data review acceptance criteria.

Table 1-1

SUMMARY OF QUALIFIED DATA

No data qualifiers were applied.

Table 1-2

DATA QUALIFIER REFERENCE

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The associated value is an estimated quantity.
J-	The result is an estimated quantity, but the result may be biased low.
J+	The result is an estimated quantity, but the result may be biased high.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.

Appendix I
Form 1 Data (Qualified)

Form 1 Data Sheet - Metals

SEMS
DELATTE METALS
SDG: 2023947

COC Sample ID: SOUTH WELL

Sample Matrix: Water

Location ID: NA

Lab Sample ID: 2023947005

Lab Code: PACE

Sample Type: Site Sample

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	08/11/2015 16:00	08/21/2015 11:14	1	1	1	U	1	U	ug/L
Cadmium	08/11/2015 16:00	08/21/2015 11:14	1	1	1	U	1	U	ug/L
Lead	08/11/2015 16:00	08/21/2015 11:14	1	1	1	U	1	U	ug/L
Manganese	08/11/2015 16:00	08/21/2015 11:14	1	1	4.1		4.1		ug/L
Nickel	08/11/2015 16:00	08/21/2015 11:14	1	1	1	U	1	U	ug/L
Zinc	08/11/2015 16:00	08/21/2015 11:14	1	5	6		6		ug/L

DF = Dilution Factor RL = Reporting Limit

* = Modified by Validation

U = Non-Detect J = Estimated R = Rejected



Appendix II Chain of Custody



The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

required project information:**Invoice Information:**

Company: SEMS Balon Rouge, Inc.	Report To: Rodehorst, Nick	Attention:
Address: 3801 N. Causeway Blvd	Copy To:	Company Name:
Suite 209, Metairie, LA 70002		Address:
Email:	Purchase Order #:	Price Quote:
Phone: Fax:	Project Name: Delate	Pace Project Manager: william.shackelford@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 6306 line 1

Regulatory Agency

State / Location

LA

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / . -) Sample ids must be unique	MATRIX CODE <small>MATRIX: Drinking Water DW Water WT Waste Water WWV Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS</small>	C/CODE <small>C=GRAB C=COMP</small>	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Y/N <small>Analytes Traced by 200 L. PK Metals by 6020</small>	Residual Chlorine (Y/N)	
				START		END				Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol			Other
				DATE	TIME	DATE	TIME												
1	Duplicate	WT	G			8/11/15	1430	1		1							X		
2	MSD - WW-04	WT					1400	1		1							X		
3	MS - WW-04	WT					1400	1		1							X		
4	North Well	WT					1530	1		1							X		
5	(b) (6) Well	WT					1430	1		1							X		
6	South Well	WT					1600	1		1							X		
7	WW-04	WT					1400	1		1							X		
8	WW-09	WT					1500	1		1							X		
9																			
10																			
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY (AFFILIATION)	DATE	TIME	ACCEPTED BY (AFFILIATION)	DATE	TIME	SAMPLE CONDITIONS
Run As Cd, Pb, Mn, Ni, and Zn only.	SEMS Inc. / Nick K... Ali. Thompson	8/12/15	1145	Ali. Thompson	8-12-15	10:00	1-8 y n y

SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: Nick Rodenhurst SIGNATURE OF SAMPLER: [Signature] DATE Signed: 8/4/15		TEMP in C Received on ice (Y/N) Custody Sealed Cooler (Y/N) Samples intact (Y/N)

ATTACHMENT E
LEVEL IV DATA PACKAGE
(CD ATTACHED)